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The International Law Commission's First Ten Draft Articles on the Law of the Non-Navigational Uses of International Watercourses: Do they Adequately Address all the Major Issues of Water Usage in the Middle East?

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Abstract

This Note argues that the first ten articles of the ILC's Draft Articles constitute a significant initial step in solving Middle Eastern water problems. This Note further argues that the ILC's failure to include provisions regulating the use of groundwater render the Draft Articles an incomplete framework for Middle Eastern states to rely upon when framing their own agreements. Part I discusses the historical significance of water, both economically and as a means of sustenance, and its effects on political relations between states that share a water source. Part I also examines the current supply of water in the Middle East and notes the political divisiveness resulting from water scarcity. Part II presents the Draft Articles and analyzes their application to watercourse states. Part III argues that, although the Draft Articles inadequately address a major concern of Middle Eastern states, the ILC's effort codifies the general principles of international water law, and will assist Middle Eastern states in solving their problems surrounding water use. This Note concludes that the General Assembly's failure to approve the Draft Articles would generate turmoil in the Middle East, inducing Middle Eastern states to abandon the peace process and revert to squabbling over water rights.

THE INTERNATIONAL LAW COMMISSION'S FIRST TEN DRAFT ARTICLES ON THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES: DO THEY ADEQUATELY ADDRESS ALL THE MAJOR ISSUES OF WATER USAGE IN THE MIDDLE EAST?

*Kevin P. Scanlan**

INTRODUCTION

Recognizing civilizations' historic employment of water as an integral resource to advance their Societies,[1] in 1970, the United Nations ("U.N.") began to study the recent trends suggesting a global scarcity of water.[2] In 1963, a U.N. study predicted that world population could exceed six billion by the year 2000.[3] This projected growth in world population alarmed the United Nations, because it would force states to allocate increasing quantities of water to satisfy the water consumption needs of their citizens.[4] Increased human consumption, distinct from other uses of water,[5] depletes a state's supply of water,[6] resulting

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1. See LUDWIK A. TECLAFF, WATER LAW IN HISTORICAL PERSPECTIVE 1 (1985) (suggesting that since people of Jericho might have practiced irrigation agriculture as early as 7000 B.C., "water development has existed for almost nine millennia"); Ludwik A. Teclaff & Eileen Teclaff, *A History of Water Development and Environmental Quality, in* ENVIRONMENTAL QUALITY AND WATER DEVELOPMENT 28, 28 (Charles R. Goldman et al. eds., 1973) (stating that as early as 3400 B.C., people of ancient Mesopotamia had constructed waterworks to control flow of rivers); DANIEL HILLEL, RIVERS OF EDEN: THE STRUGGLE FOR WATER AND THE QUEST FOR PEACE IN THE MIDDLE EAST 59 (1994) (illustrating that around 5,000 B.C. Egyptian farmers constructed dikes that enabled them to trap water in specific area until it soaked into ground, producing soil moist enough to sustain agriculture through entire growing season).

2. G.A. Res. 2669, U.N. GAOR, 25th Sess., Supp. No. 28, at 127, ¶ 1, U.N. Doc. A/8028 (1970). In 1970, the United Nations General Assembly suggested that the International Law Commission begin examining the law of the non-navigational uses of international watercourses to contribute to its "progressive development and codification." *Id.*

3. DEP'T OF ECONOMIC AND SOCIAL AFFAIRS, WORLD POPULATION PROSPECTS AS ASSESSED IN 1963, U.N. Doc. ST/SOA/SER.A/41, Sales No. 66.XIII.2 (1963).

4. DEP'T OF ECONOMIC AND SOCIAL AFFAIRS OF THE UNITED NATIONS, ABSTRACTIONS AND USE OF WATER: A COMPARISON OF LEGAL REGIMES 2 (1972) [hereinafter U.N. ABSTRACTIONS]. For instance, it will force states to distribute more water to agricultural efforts and domestic uses such as drinking water, personal hygiene, and air-conditioning. *Id.*

5. *Id.* The United Nations states that activities such as navigation, fishing, and the

in less water for other activities.[7] Simultaneously, industrial and metropolitan growth place additional demands on water resources.[8] As long as population and industrialization pressures persist, therefore, states' demand for additional water may someday exhaust the water sources available to them.[9]

Worldwide, two or more states share the use of approximately 214 river basins.[10] In the Middle East, however, fifty percent of the region's population relies upon water flowing from another state.[11] This condition of mutual dependency, com-

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generation of electric power do not decrease the amount of water available for other uses. *Id.*

6. *Id.* For instance, a large portion of the water dispensed to irrigation farming or food-processing is used up in the process. *Id.* In addition, much of the remaining water is of such low quality that it is unusable without extensive treatment. *Id.*

7. *Id.* A state's desire to employ water to increase its level of industrialization, for example, competes with the water needs of its citizens. *Id.*

8. HILLEL, *supra* note 1, at 34. "Greater populations will require expansion and intensification of agriculture and greater reliance on irrigation. The problem here is that while expanding irrigation will require more water, so will the simultaneous growth of cities and industries." *Id.*

9. *Id.* Increases in population require states to dispense more water to their agricultural efforts and to their growing cities and industries. *Id.*

10. UNITED NATIONS ENVIRONMENTAL PROGRAMME, 1991: THE STATE OF THE WORLD ENVIRONMENT, at 27 (UNEP 1991), U.N. Doc. UNEP/GC. 16/9 [hereinafter UNEP]. Approximately, 35% to 40% of the World's population resides in states having 75% or more of their territory located in shared river basins. *Id.* at 29.

11. American Society of International Law, *Water Resources in the Middle East: Impact on Economics and Politics*, Proceedings of the 80th Annual Meeting 249, 250 (1986) [hereinafter 80th Proceedings]. International water systems are hydrologic units. *See* INTERNATIONAL LAW ASSOCIATION, REPORT OF THE FIFTY-SECOND CONFERENCE HELD AT HELSINKI art. II (1967) [hereinafter HELSINKI RULES] (regarding international drainage basins as "indivisible hydrologic unit's" which require multilateral planning to achieve maximum utilization); LUDWIK A. TECLAFF, THE RIVER BASIN IN HISTORY AND LAW Ch. II (1967) [hereinafter RIVER BASIN] (illustrating physical unity of river basins); Ludwik A. Teclaff, *Fiat or Custom: The Checkered Development of International Water Law*, 31 NAT. RESOURCES J. 45, 45 (1991) (asserting that because river basin constitutes interdependent water system, damage done to water at one point in system is transmitted to another point). As hydrologic units, an increase in the use of an international water source by one state will adversely affect another state's use. U.N. DEP'T OF INT'L ECONOMICS & SOCIAL AFFAIRS, MANAGEMENT OF INTERNATIONAL WATER RESOURCES: INSTITUTIONAL AND LEGAL ASPECTS at 12, U.N. Doc. ST/ESA/5, U.N. Sales No. E.75.II.A.2 (1975) [hereinafter UNDESA]. For example:

> Extensive irrigation and hydroelectric projects upstream will reduce the flow to the lower riparians and may deprive them of adequate water supplies for navigation or municipal, industrial, and agricultural uses. Similarly, a downstream riparian may wish to construct locks and dams to regulate water flow, affecting the rate of flow upriver.

Jonathan E. Cohen, Note, *International Law and the Water Politics of the Euphrates*, 24 N.Y.U. J. INT'L L. & POL. 502, 506 (1991).

bined with the fact that most Middle Eastern states[12] cannot access sufficient amounts of water for their growing needs,[13] prompted the U.S. Department of State[14] to declare the Middle East as the region most likely to go to war over the use of transboundary water resources.[15]

In an attempt to provide states with legal rules governing the use of international watercourses, and thereby reduce states' temptation to seize water for their own needs without regard for other states' water needs,[16] in 1970, the U.N. General Assembly[17] ("General Assembly") assigned to the International Law Commission[18] ("ILC") the duty of creating Draft Articles on the Law of the Non-Navigational Uses of International Watercourses ("Draft Articles").[19] The ILC intended the Draft Articles to supply states with an agreement framing the principles regulating

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12. 80th Proceedings, *supra* note 11, at 258. The United Nations employs the term "ESCWA" to describe the Middle East. United Nations Economic and Social Commission for Western Asia, *Survey of Economic and Social Developments in the ESCWA Region* (1994) [hereinafter *ESCWA Region*]. The States within the ESCWA Region are Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen. *Id.* at 77-88. For purposes of this Note, the term "Middle East" will include the ESCWA Region States as well as Israel and Turkey. *See* HILLEL, *supra* note 1, at 7-8 (stating that Middle East is "generally assumed to encompass the states or territories of Turkey, Syria, Lebanon, Iraq, Iran, Israel and the rest of Palestine, Jordan, Egypt, Sudan, Libya, and the various states of the Arabian Peninsula (Saudi Arabia, Kuwait, Yemen, Oman, Bahrain, Qatar, and Oman)").

13. 80th Proceedings, *supra* note 11, at 258.

14. THOMAS S. ESTES & E. ALLAN LIGHTNER, JR., THE DEPARTMENT OF STATE 64 (1976). The U.S. Department of State's primary role is to promote the long-range security of the United States. *Id.* As a result, U.S. Presidents often rely upon the Department of State for assistance in the creation of foreign policy. *Id.*

15. Joyce Starr, *Water Resources: A Foreign-Policy Flashpoint*, ENVTL. PROTECTION AGENCY J., July 1990, at 34. The U.S. Department of State believes that "there are presently at least 10 places in the world where war could erupt over dwindling shared resources, the majority in the Middle East." *Id.*

16. U.N. SECRETARIAT, DEP'T OF TECHNICAL COOPERATION FOR DEVELOPMENT, Legal and Institutional Aspects of River Basin Development, in NATURAL RESOURCES WATER SERIES NO. 20: RIVER AND LAKE BASIN DEVELOPMENT at 137, U.N. Doc. ST/TCD/13, U.N. Sales No. E.90.II.A.10 (1988).

17. U.N. CHARTER art. 10. The General Assembly is comprised of all the member states of the United Nations. *Id.* The General Assembly discusses, considers, and makes recommendations to other constituent bodies of the United Nations on any subject, including issues involving the maintenance of international peace and security. *Id.* arts. 11, 14.

18. G.A. Res. 174, U.N. Doc. A/RES/174(II) (1947) (forming International Law Commission); G.A. Res. 36/39, U.N. GAOR, 36th Sess., U.N. Doc A/RES/36/39 (1981) (enlarging International Law Commission ("ILC") to total of 34 constituents).

19. G.A. Res. 2669, *supra* note 2, at 127, ¶ 1.

the non-navigational use of international watercourses.[20] By 1994, the ILC had adopted the final text of the Draft Articles.[21] The General Assembly will convene from October 7 to October 25, 1996 to develop a framework convention[22] based upon these Articles.[23]

This Note argues that the first ten articles of the ILC's Draft Articles constitute a significant initial step in solving Middle East-

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20. *Report of International Law Commission of the Work of its Forty-Sixth Session*, U.N. GAOR 6th Comm., 49th Sess., Supp. No. 10, at 207, U.N. Doc. A/49/10 (1994) [hereinafter *Report of the ILC's Forty-Sixth Session*]. Special Rapporteur Robert Rosenstock argued that the concept of a framework agreement will best solve the problems surrounding the uses of international watercourses by providing:

> [F]or the States parties the general principles and rules governing the non-navigational uses of international watercourses, in the absence of specific agreement among the States concerned, and provide guidelines for the negotiations of future agreements. This approach recognizes that the optimal utilization, protection and development of a specific international watercourse is best achieved through an agreement tailored to the characteristics of that watercourse and to the needs of the States concerned. It also takes into account the difficulty, as revealed by historical record, of reaching such agreements relating to individual watercourses without the benefit of general legal principles concerning the use of such watercourses. It contemplates that these principles will be set forth in the framework agreement.

Id.

21. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 326; *Report of International Law Commission of the Work of its Forty-Sixth Session*, U.N. GAOR 6th Comm., 49th Sess., Supp. No. 10, at 197, U.N. Doc. A/49/10 (1994) [hereinafter *Draft Articles*].

22. OXFORD ENGLISH DICTIONARY (2nd ed. 1989). A convention is "[a]n agreement between sovereigns or states: formerly was equal to a Treaty; now applied to an agreement of less formality or importance than a treaty." *Id.* A convention's status as a legally binding document depends upon whether it is declaratory of customary international law. Reaz Rahman, *The Law of the Non-Navigational Uses of International Watercourses: Dilemma for Lower Riparians*, 19 FORDHAM INT'L L.J. 9, 14-15 (1995). "Provisions declaratory of customary law are clearly binding on states and create real legal rights and obligations." *Id.* According to U.N. Representative Reaz Rahman, the Draft Articles are declaratory of customary international water law and consequently, should be given convention status instead of that of a framework convention or agreement. *Id.* at 16-17.

23. G.A. Res. 49/52, U.N. GAOR, 49th Sess., Agenda Item 137, U.N. Doc. A/RES/49/52, at 2, ¶3 (1995). This Resolution provides that:

> [A]t the beginning of its fifty-first session [1996], the Sixth Committee shall convene as a working group of the whole, open to States Members of the United Nations or members of specialized agencies, for three weeks from 7 to 25 October 1996 to elaborate a framework convention on the law of the non-navigational uses of international watercourses on the basis of the draft articles adopted by the International Law Commission in the light of the written comments and observations of States and views expressed in the debate at the forty-ninth session.

Id.

ern water problems. This Note further argues that the ILC's failure to include provisions regulating the use of groundwater[24] render the Draft Articles an incomplete framework for Middle Eastern states to rely upon when framing their own agreements. Part I discusses the historical significance of water, both economically and as a means of sustenance, and its effects on political relations between states that share a water source. Part I also examines the current supply of water in the Middle East and notes the political divisiveness resulting from water scarcity. Part II presents the Draft Articles and analyzes their application to watercourse states.[25] Part III argues that, although the Draft Articles inadequately address a major concern of Middle Eastern states, the ILC's effort codifies the general principles of international water law, and will assist Middle Eastern states in solving their problems surrounding water use. This Note concludes that the General Assembly's failure to approve the Draft Articles would generate turmoil in the Middle East, inducing Middle Eastern states to abandon the peace process and revert to squabbling over water rights.

I. *THE CONTEXTUAL BACKGROUND OF WATER USE*

The availability of water is directly linked to the development and advancement of a civilization.[26] For instance, the ancient civilizations of the Nile,[27] Tigris-Euphrates,[28] and Yellow Rivers[29] developed water sources and diverted water flows for use

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24. AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (1981). Groundwater is defined as "[w]ater beneath earth's surface between saturated soil and rock that supplies wells and springs." *Id.* Surface water, on the other hand, consist of rivers, lakes, ponds, and marshes. J.G. LAMMERS, POLLUTION OF INTERNATIONAL WATERCOURSES 17 (1984).

25. *Draft Articles*, *supra* note 21, art. 2(c), at 199. A watercourse state is "a State in whose territory part of an international watercourse is situated." *Id.*

26. LUIS V. CUNHA ET. AL., MANAGEMENT AND LAW FOR WATER RESOURCES 10 (1977). The presence of water in a specific geographic region was responsible for the genesis and subsequent advancement of civilizations that settled near the water source. *Id.*

27. RIVER BASIN, *supra* note 11, at 15. To supply their citizens with water for irrigation, the ancient Egyptians constructed an elaborate network of dikes that prevented the Nile from flooding. *Id.* at 16.

28. *Id.* at 15. The ancient Mesopotamian engineers created a system of canals to regulate the flows of the two rivers. *Id.* at 17. As a result, farmers could access irrigation water regardless of the level of the rivers. *Id.*

29. *Id.* at 15. In the second century B.C., a society inhabiting land between two rivers joined the two rivers by digging an irrigation canal between them. MARCEL

in their agricultural societies.[30] In addition, the creation of a sophisticated aqueduct system allowed ancient Roman citizens[31] to enjoy many social and recreational uses of water.[32] In fact, the value of water to civilizations is reflected in ancient treaties designed to regulate the use of water sources within societies' immediate proximities.[33] Civilizations ratified such agreements to regulate the use of water even though their primitive and technologically limited methods of water use had little impact upon the quantity and quality of the available water.[34] New considerations surrounding global water use now exist, however, due to the World's growing population[35] and the implementation of modern technology in developing water projects.[36]

GRANET, CHINESE CIVILIZATION 88 (1958). This canal enabled them to drain land previously submerged under water and irrigate land for use in agriculture. *Id.*

30. RIVER BASIN, *supra* note 11, at 15-23. By exploiting their control of the water supply, the ancient Persians were able to preserve their supremacy over conquered societies. *Id.* at 23. They did this by constructing dams upstream, thereby preventing adequate water resources from reaching the societies relying upon the water downstream. *Id.* The Persians would then allocate water to one society, while simultaneously shutting off the supply of water to all other societies. *Id.*

31. OXFORD ENGLISH DICTIONARY (2nd ed. 1989). An ancient Roman citizen was a person who held "the position of a citizen or member of the ancient republic or empire of Rome." *Id.*

32. *See* HARRY B. EVANS, WATER DISTRIBUTION IN ANCIENT ROME: THE EVIDENCE OF FRONTINUS 7 (1994) (illustrating Romans' development of complex aqueduct system designed to deliver water to its citizens).

33. *See* RIVER BASIN, *supra* note 11, at 21 (describing international treaty between two ancient Mesopotamian cities, Umma and Lagash, which resolved conflict over allocation of irrigation water in third millennium B.C.); JANOS BRUHACS, THE LAW OF NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES 9 (1993) (recounting how 12 ancient Hellenic States agreed amongst themselves that they would neither alter river beds nor obstruct another's use of watercourses, regardless of whether they were at war with one another or at peace).

34. *See* TECLAFF, *supra* note 1, at 1 (noting that due to low level of energy used in early stages of water development, detrimental effects upon environment were minimal).

35. *See* UNITED NATIONS, WORLD POPULATION PROSPECTS: THE 1994 REVISION 97 (1994) [hereinafter 1994 REVISION] (setting forth, in Table 43, that World's population will increase by more than four million people between 1994 and 2050); *see supra* notes 4-9 and accompanying text (noting that as World population grows, states are forced to extract more water from available water sources to satisfy increasing demand).

36. RIVER BASIN, *supra* note 11, at 113. At the turn of the century, states began to employ concrete, steam power, electricity, and dynamite to rapidly develop water basins. *Id.* As a result, states could construct more in 20 years than an entire dynasty of rulers in antiquity. *Id.* Consequently, an average of 170 dams per year are built worldwide. SANDRA POSTEL, LAST OASIS: FACING WATER SCARCITY 38 (1992). At present rates of development, waterworks will control two-thirds of the global water flow by the end of the century. NATIONAL RESOURCE COUNCIL, RESTORATION OF AQUATIC ECOSYSTEMS:

A. *Water Scarcity*

Beginning in the twentieth century, supplies of sufficient quantities of potable water became a universal problem.[37] By the year 2000, 250 million people on the African continent will either suffer or die from inadequate water supplies.[38] The U.N. Children's Fund[39] reports that 25,000 children worldwide die each day from a lack of water or from drinking contaminated water.[40] Forty percent of the World's population, located in eighty states, experience water shortages each year.[41]

1. Why Populations, Societies, and Civilizations Need Water?

Ancient civilizations valued water because it provided them with a material that could collect wastes and irrigate fields as well as enable them to perform stockbreeding,[42] pisciculture,[43] and navigation.[44] The ancient Egyptians[45] and Mesopotamians,[46] owed much of the success of their civilizations to the waters of the Nile and Tigris-Euphrates, which enabled them to practice extensive irrigation farming.[47] Water satisfies a society's funda-

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SCIENCE, TECHNOLOGY, AND PUBLIC POLICY 200 (1992) [hereinafter NATIONAL RESOURCE COUNCIL].

37. *See* RIVER BASIN, *supra* note 11, at 1 (stating that "[w]ater, a universal need, has become in the twentieth century as perhaps never before in history a universal problem").

38. Starr, *supra* note 15, at 34-35.

39. Maureen Moran, *Ending Exploitative Child Labor Practices*, 5 PACE INT'L L. REV. 287, 300 n.38 (1993). In 1946, the international community created the United Nations International Children's Emergency Fund ("UNICEF") to deal with the problem of homeless refugee children after World War II. *Id.* Although it initially focused on child feeding after World War II, UNICEF has evolved into a body that delivers long-term maternal care and promotes child welfare. CULTURAL PATTERNS AND TECHNICAL CHANGE 28 (Margaret Mead ed., 1953).

40. Starr, *supra* note 15, at 34-35.

41. Karina Porcelli, *The Thirst for Water*, SCANORAMA, July/Aug. 1993, at 20, 22.

42. AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (1981). Stockbreeding is described as "[t]he raising of livestock." *Id.*

43. *Id.* Pisciculture is defined as "[t]he breeding, hatching, and rearing of fish under controlled conditions." *Id.*

44. CUNHA, *supra* note 26, at 1.

45. T. Evans, *History of Nile Flows*, *in* THE NILE SHARING A SCARCE RESOURCE 27, 27-28 (Paul P. Howell & J.A. Allan eds., 1994). The Egyptian civilization flourished 4000 years ago on the banks of the Nile River. *Id.*

46. OXFORD ENGLISH DICTIONARY (2nd ed. 1989). A Mesopotamian was a "native or inhabitant of Mesopotamia," which is "the tract [of land] between the Tigris and Euphrates." *Id.*

47. RIVER BASIN, *supra* note 11, at 15.

mental need for hydration as well as enabling them to wash and cleanse themselves.[48] More recently, states have utilized water to produce electricity by means of hydropower, and thermal or nuclear power.[49] Finally, many industries tend to follow water sources because their industrial production processes utilize large quantities of water.[50]

2. Why Water is Scarce

Although seventy percent of the World is covered by water,[51] a very small proportion[52] constitutes freshwater.[53] While the amount of freshwater on the Earth remains fixed,[54] human beings have increased withdrawals from the supply of freshwater four-fold over the past forty-five years.[55] Although modern technology assists states in capturing, storing, and transporting large quantities of freshwater,[56] many states[57] recognize that their de-

48. HERBERT A. SMITH, THE ECONOMIC USES OF INTERNATIONAL RIVERS 1 (1931).

49. CUNHA, *supra* note 26, at 1.

50. U.N. ABSTRACTIONS, *supra* note 4, at 4. For instance, thermal-power plants, blast furnaces, and steel mills constantly require a large quantity of water. *Id.*

51. Pamela LeRoy, *Troubled Waters: Population and Water Scarcity*, 6 COLO. J. INT'L ENVTL. L. & POL'Y 299, 299 (1995).

52. American Society of International Law, *The Non-Navigational Uses of International Watercourses*, Proceedings of the 84th Annual Meeting 228, 228 (1990) [hereinafter 84th Proceedings]. Of the World's freshwater, approximately 97% is carried within polar ice caps and glaciers, 3% is underground, and .1% is found in streams and lakes. *Id.*

53. *Id.* Ten percent of the Earth's water consists of freshwater. *Id.*

54. *See* LUNA B. LEOPOLD & KENNETH S. DAVIS, WATER 33 (1966) (claiming that amount of water on Earth has not changed in three billion years); Rahman, *supra* note 22, at 9 (asserting that Earth's supply of freshwater is fixed); LeRoy, *supra* note 51, at 299 (stating that Earth contains same amount of freshwater today as it did 2000 years ago); 84th Proceedings, *supra* note 52, at 228 (explaining that laws of physics and hydrologic cycle demonstrate why supply of water on planet is constant).

55. LeRoy, *supra* note 51, at 302. This four-fold increase was due to the combination of two phenomena in the last 50 years. *Id.* First, the World's population grew from 2.5 to 5.6 billion between 1950 and 1994. 1994 REVISION, *supra* note 35, at 97 (setting forth past population growth in Table 43). Second, during that same time period, each person's use of water increased from 400 to 800 cubic meters per year. ROBIN CLARKE, WATER: THE INTERNATIONAL CRISIS 32 (1993).

56. TECLAFF, *supra* note 1, at 2 (noting that application of modern technology enabled states to perform "large-scale diversion[s] from basins amply endowed with water," which resulted in abundance of water ready for use in irrigation, hydroelectric power, and municipal water supply).

57. Leroy, *supra* note 51, at 306. In 1990, 20 states were classified as "water-scarce countries." *Id.* at 307. A state is water-scarce whenever its per capita annual supplies of water fall below 1000 cubic meters. POSTEL, *supra* note 36, at 28. In 1992, 232 million people, residing in 26 states, lived under conditions of water-scarcity. *Id.* at 29. By

mand for water is exceeding or will exceed their supply.[58] Furthermore, modern technological attempts to increase the supply of freshwater[59] have ecologically damaged the World's water systems,[60] thereby degrading the quality of the available water.[61] The lack of adequate freshwater supplies has induced states to tap their non-renewable[62] water resources in ever greater quanti-

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2025, it is estimated that 32 states will suffer from chronic water scarcity. LeRoy, *supra* note 51, at 308. Moreover, as many as 904 million people may live in these water scarce states. *Id.*

58. Asit K. Biswas, *Series Preface: Water Resources Management, in* INTERNATIONAL WATERS OF THE MIDDLE EAST: FROM EUPHRATES-TIGRIS TO NILE xi, xi (Asit K. Biswas ed., 1994). As the World's population continues to escalate, states will begin to funnel more and more of their finite water resources into industry, agriculture, hydropower, and domestic uses. *Id.* This will occur even though "new sources of water are becoming scarce, more expensive to develop, [and] require more expertise and technological knowhow for planning, design, implementation and operation." *Id.*

59. *See* Paul P. Howell & J.A. Allan, *Introduction, in* THE NILE SHARING A SCARCE RESOURCE 2, 2-3 (1994) (reporting that although Egypt's development of Aswan High Dam was predicted to ensure Egypt with adequate water supply well into next century, it became clear in early 1990's that Aswan High Dam was no longer supplying Egypt with sufficient amount of water); Jayne E. Daly, *From Divining Rods to Dams: Creating a Comprehensive Water Resource Management Strategy for New York*, 1995 PACE L. REV. 105, 109 n.59 (1995) (noting that even though New York City extracts its water supply from reservoirs over 100 miles away through 6000 miles of pipes, New York City is currently searching for additional water); A. Dan Tarlock, *From Natural Scarcity to Artificial Abundance: The Legacy of California Water Law and Politics*, 1 W. NW. J. ENVTL. L. POL'Y THOUGHT 71, 71 (1994). The utilization of advances in water use technology allowed California to transform the southern portion of the state into a region with abundant water resources, able to support extensive agriculture. *Id.* Recently, California has realized that such water usage is no longer sustainable and is forced to rethink its water policy, keeping in mind that future water resources are fixed. *Id.*

60. Leroy, *supra* note 51, at 304. Egypt's use of the Aswan Dam has increased the number of parasitic worms in the water, devastated the Nile's fishing grounds, eroded beaches, and upset the nutrient and sediment balance of the Nile. *Id.*; Ludwik A. Teclaff & Eileen Teclaff, *Restoring River and Lake Ecosystems*, 34 NAT. RESOURCES J. 905, 907 (1994) [hereinafter *Restoring Rivers*]. It is well known that:

> Dams, . . . produce changes in the water itself, in quantity, rate of flow and gradient, temperature and silt load; changes in the bed and banks of the water body, e.g., by erosion in some parts and accretion in others; changes in the level and quality of groundwater connected with surface watercourses; and changes in the natural seasonality of flood and drought.

Id.

61. *See* Daly, *supra* note 59, at 112 (arguing that it is crucial that resource management projects consider quality of water involved as well as quantity, since quality of water is directly related to its potential use).

62. LeRoy, *supra* note 51, at 326 n.24. Non-renewable resources largely consist of underground aquifers that have minimal recharge capacity because they were originally filled thousands of years ago when water was able to enter the earth's subsurface. *Id.* Due to their slow rate of recharging, any water program based on withdrawals from underground aquifers is unsustainable. *Id.* Renewable freshwater consists of the water

ties to meet their growing needs.[63] Accordingly, the ILC's Special Rapporteur[64] for the Draft Articles, Stephen C. McCaffrey,[65] characterized future water use in terms of shrinking allowances of water per person with greater competition among users for a larger share of the remaining water.[66]

a. Rapid Population Growth

The United Nations focuses its analysis of global demographics on the World's rapid population growth.[67] Between 1995 and 2000, the World's population will increase by approximately ninety-eight million people per year.[68] By the year 2050, ten billion human beings will share the Earth's finite water supply.[69] The rapidly growing population is forcing states to allocate more of their water resources to domestic purposes.[70] Increases in domestic water consumption, however, exacerbate water scarcity because they deplete the supply of water resources[71] and degrade the quality of the water.[72]

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in reservoirs, streams, and other water sources, which are frequently replenished with the water from either runoff or precipitation. *Id.* at 326 n.1.

63. U.N. ABSTRACTIONS, supra note 4, at 3. In fact, in many arid regions, groundwater is the exclusive supply of water for human needs and agriculture. *Id.*

64. OXFORD ENGLISH DICTIONARY (2nd ed. 1989). A rapporteur is "[a] person who prepares an account of the proceedings of a committee, etc. for a higher body." *Id.*

65. Stephen C. McCaffrey, *A Human Right to Water: Domestic and International Implications*, 5 GEO. INT'L ENVTL. L. REV. 1, 1 n.** (1992). Stephen McCaffrey is a Professor of Law at the University of the Pacific, McGeorge School of Law. *Id.* From 1985 to 1991, he served as Special Rapporteur for the ILC's Draft Articles on the law of the non-navigational uses of international watercourses. *Id.*

66. *Id.* at 1.

67. *See* UNITED NATIONS POPULATION FUND, THE STATE OF WORLD POPULATION 1 (1993) [hereinafter UNPF 1993] (stating that "[r]apid population growth is therefore, still the dominant feature of global demographics, and will continue to be for at least the next 30 years").

68. *Id.*

69. *Id.*

70. *See* U.N. ABSTRACTIONS, *supra* note 4, at 2 (stating that increases in population compel states to allocate more water to domestic purposes). Water is used for domestic purposes when consumed as drinking-water or when expended on activities such as laundry, refrigeration, air-conditioning, watering a lawn, personal hygiene, fire-fighting, and the production of food through irrigation farming or industrial efforts. *Id.*

71. *Id.* Utilizing water for domestic purposes:

> [S]ubstantially deplete[s] the source of supply. They do this by actually using up a large percentage of the amount taken, as in irrigation and some types of food-processing; by returning water to the source of supply so changed in quality (by domestic sewage, industrial waste, land drainage or thermal pollu-

i. Rapid Population Growth Necessitates Increased Dedication of Water Resources to Agricultural Efforts

By 2030, the global consumption of food will nearly double due to the expanding world population.[73] To keep pace with this growth in food consumption, world grain output must increase by 1.6% each year.[74] The United Nations has long regarded irrigation as a dependable way for states to expand their food supplies.[75] Irrigation, increases agricultural yields by supplying dry regions with sufficient water to plant crops.[76] Accordingly, five times as much land was irrigated in 1992 than in 1900.[77] In fact, between 1950 and 1990 alone, the amount of irrigated land more than doubled due to the need to support the growing population.[78] Consequently, by 1994, agricultural projects consumed almost seventy percent of the World's supply of renewable freshwater.[79] Much of the water used to produce food, however, is lost in the process.[80] Furthermore, long-term studies demonstrate that agricultural use of land can adversely

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tion) as to make that source unavailable to succeeding users without extensive treatment; . . .

Id.

72. LeRoy, *supra* note 51, at 305. When states begin to distribute more of their resources to food production, more trees are cut down, pesticides and fertilizers are used to a greater extent, and a surge in the release of greenhouse gases are experienced. *Id.* Collectively, these factors contaminate water sources, thus, degrading the quality of available water. *Id.*

73. WORLD BANK, WORLD DEVELOPMENT REPORT 1992: DEVELOPMENT AND THE ENVIRONMENT 134 (1992) [hereinafter WORLD BANK]. In developing states, the consumption of food will more than double. *Id.*

74. *Id.* Four-fifths of the developing World's food consumption consists of grains. *Id.*

75. U.N. ABSTRACTIONS, *supra* note 4, at 3.

76. *Id.* In addition, irrigation permits agriculture to exist in regions otherwise unable to support crops due to an annual dry season. *Id.*

77. POSTEL, *supra* note 36, at 49. In 1990, one-third of the global harvest was produced on irrigated land. U.N. POPULATION FUND, THE STATE OF THE WORLD POPULATION 6 (1994) [hereinafter UNPF 1994]. Furthermore, the global use of water in irrigation efforts has increased ten-fold this century. CLARKE, *supra* note 55, at 27.

78. UNPF 1994, *supra* note 77, at 6.

79. *Id.* at 303. Approximately 69% of renewable freshwater is used for agriculture, 23% is allocated to industry and the generation of electric power, and 8% is consumed on domestic or household purposes. *Id.*

80. CLARKE, *supra* note 55, at 27 (stating that less than one-half of water used in irrigation reaches crop it is intended to water); *see supra* note 6 and accompanying text (illustrating that large portion of water distributed to irrigation farming and food-processing is used up in processes).

impact the groundwater stored below the farmland.[81]

ii. States Increasingly Rely Upon Non-Renewable Water Resources to Satisfy Current Needs

In its 1994 report, the U.N. Population Fund[82] noted that worldwide, states are approaching the boundary of sustainable development[83] based on their supply of renewable water resources.[84] States, however, are increasingly making withdrawals from non-renewable groundwater[85] to provide water for their growing human needs.[86] For example, in Bahrain, Jordan, Saudi Arabia, and Yemen the rate of withdrawal from groundwater exceeds the rate of recharge.[87] Further, the water tables of wells serving ten cities in the northern provinces of China have dropped one meter per year due to the cities' continuing withdrawals of groundwater.[88] In addition, the overpumping of groundwater in Bangkok has broken the city's water and sewage

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81. JUDITH D. SOULE & JOHN K. PIPER, FARMING IN NATURE'S IMAGE: AN ECOLOGICAL APPROACH TO AGRICULTURE 31 (1992). Long-term studies found that increases in the nitrate level of groundwater are correlated to use of fertilizers on the land above the groundwater. *Id.* In Iowa, for example, the level of nitrates in the groundwater increased three-fold from 1958 to 1983. *Id.* "The only major change in nitrogen sources in the basin during this period was a threefold increase in the amount of nitrogen fertilizer applied to the farmland. As fertilizer application increased, so did groundwater contamination." *Id.*

82. Barbara B. Crane & Stephen L. Isaacs, *The Cairo Programme of Action: A New Framework for International Cooperation on Population and Development Issues*, 36 HARV. INT'L L.J. 295, 295 (1995). The United Nations Population Fund was created to attract broad support from donors and to provide an additional source of grant funds for population and family planning activities, at a time when developing countries often gave low priority to these activities. *Id.* Since the mid-1960's, this Fund and other U.N. organizations have worked with developing countries on a range of population-related activities including: censuses and other data collection, family planning and maternal and child health services, contraceptive research, and training and communications at all levels. *Id.*

83. UNPF 1994, supra note 77, at 6. Sustainable development is defined as utilizing water resources in a way that "meets the needs of the present without compromising the ability of future generations to meet their own needs." WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, OUR COMMON FUTURE 8 (1987). A water development program as unsustainable if it extracts water at a rate faster than it is replenished. LeRoy, *supra* note 51, at 326 n.24.

84. UNPF 1994, *supra* note 77, at 6.

85. Robert Engelman, *But not a drop to drink*, BALTIMORE EVENING SUN, January 7, 1994, at 1.

86. *Id.*

87. *ESCWA Region*, *supra* note 12, at 70.

88. WORLD BANK, *supra* note 73, at 50.

pipes and caused seawater to enter the water system.[89] In fact, even the United States is increasingly relying upon groundwater to satisfy its water needs.[90] One commentator is concerned about the increasing use of non-renewable water supplies because once the non-renewable resources dry up, states will revert back to sole reliance on the renewable water supply, which, by then, would be grossly inadequate to support the population.[91]

b. Global Industrialization

In the last 100 years, the potential uses for water have expanded,[92] resulting in greater competition for the available water.[93] For instance, states must allocate their water resources to satisfy their industrial and municipal needs, the needs of their irrigation projects, and the use of water for the generation of electric power.[94] Due to states' high population growth,[95] however, less developed states are forced to allocate much of their water resources to agricultural efforts.[96] Industrialized states, on the other hand, do not suffer from high population growth[97]

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89. *Id.* at 98.

90. WENDY GORDON, A CITIZEN'S HANDBOOK ON GROUNDWATER PROTECTION 11 (1984). The United States' use of groundwater has experienced a four-fold increase from 21 billion gallons per day in 1945 to 88 billion gallons per day in 1980. *Id.* California, for example, has transformed the southern third of the State into a productive agricultural region by utilizing high capacity pumps able to extract large quantities of water from groundwater resources. Donald E. Green, *A History of Irrigation Technology Used to Exploit the Ogallala Aquifer, in* GROUNDWATER EXPLOITATION IN THE HIGH PLAINS 29, 30-31 (David E. Kromm & Stephen E. White eds., 1992).

91. *See* Engelman, *supra* note 85, at 2 (stating that "the danger is that now-abundant non-renewable water resources will eventually be sucked dry. Much more modest renewable resources would then be pressed to support populations that could not have grown so numerous in the absence of non-renewable water").

92. SMITH, *supra* note 48, at 1 (stating that "[o]ne of the most noteworthy features of the last hundred years has been the immense increase in the use of water").

93. RIVER BASIN, *supra* note 11, at 1.

94. *Id.*

95. *See* 1994 Revision, *supra* note 35, at 99 (reporting that between 1950 and 1994, populations of less developed states grew by 161%); UNPF 1993, *supra* note 67, at 1 (finding that developing countries percentage of increase in world population has expanded from 77% in 1950 to 93% in 1990, and is predicted to increase to 95% between 1993 and 2000).

96. *See* UNPF 1994, *supra* note 77, at 6 (reporting that agricultural efforts consume 99% of all water used in Sudan and Afghanistan); *ESCWA Region*, *supra* note 12, at 70 (finding that States in ESCWA region realize need to increase agricultural production due to fact that population is growing faster than present agricultural and food production).

97. *See* 1994 Revision, *supra* note 35, at 99 (stating that between 1950 and 1994,

and, therefore, are free to distribute a greater percentage of their water to industrial efforts.[98] Yet, increases in industrialization, like increases in population, force states to provide more water to their industry[99] and society.[100] Consequently, states increasingly are developing water basins[101] to enable them to access more water for their growing human needs and to further their industrial efforts.[102] Water projects, however, tend to degrade the quality of the water itself,[103] placing an added cost on co-riparians' ability to obtain adequate resources from the water source.[104] Similar to developing states, therefore, the demand

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population of more developed states increased by only 43% and is predicted to increase by 4% between 1994 and 2050, as opposed to population in less developed regions, which will grow by 93% in same time period).

98. LeRoy, *supra* note 51, at 303. Belgium and Finland, for example, allocate approximately 85% of their water withdrawals to industrial efforts while many developing states distribute less than 5% to such activities. WORLD RESOURCES INSTITUTE, WORLD RESOURCES 1992-1993, at 328, 329 [hereinafter WORLD RESOURCES].

99. *See* River Basin, *supra* note 11, at 1 (stating that more advanced states demand larger amounts of water due to increasing complexity of economy).

100. LeRoy, *supra* note 51, at 303. Whether a state's standard of living increases or its population expands, the result is the same: intensified competition for the finite water resources of the state. *Id.* As a result, the most developed states possess the highest per capita consumption of water in the World due to higher standards of living. McCaffrey, *supra*, note 65, at 4. The average person residing in the United States, for example, consumes seventy times the amount of water per year than the average resident of Ghana. J.W. Maritus La Riviere, *Threats to the World's Water*, SCI. AM., Sept. 1989, at 80. In addition, a typical U.S. resident consumes 185 gallons per day for domestic tasks while the average person from Senegal uses approximately 7.6 gallons daily. WORLD RESOURCES, *supra* note 98, at 328, 329.

101. *Restoring Rivers*, *supra* note 60, at 907 (noting extent of river development projects by stating that such projects prevent all but "few major rivers anywhere in the world [from] reach[ing] their destination, be it sea or lake or desert sink, in a natural state"); POSTEL, *supra* note 36, at 38-39 (stating that only one of Japan's 109 major rivers flows unobstructed from beginning to end); *See* NATIONAL RESOURCE COUNCIL, *supra* note 36, at 200 (estimating that if present rates of development of river basins continue, waterworks will control two-thirds of Earth's total stream flow by end of century).

102. UNDESA, *supra* note 11, at 5 (declaring that water is essential material to build most industries).

103. *Restoring Rivers*, *supra* note 60, at 906. For instance, the extensive waterworks on the Colorado River have "produced changes in temperature, salt content and turbidity, as well as large fluctuations in flow, resulting in the near extinction of several species of native fish as well as innumerable adverse impacts on other forms of wildlife and vegetation." *Id.* at 908. Furthermore, 40 years of exploitation as a source of supply for hydroelectric plants has immensely decreased the size of Lake Sevan, a valuable source of water for drinking and irrigation in Armenia. *Id.*

104. UNDESA, *supra* note 11, at 6. A common example of this problem is where one state's irrigation project upstream prevents a downstream state from receiving enough water to perform navigational, municipal, industrial, or agricultural uses. *Id.* In addition, if the upstream state engages in an activity that generates pollutants, the

for water in industrialized states is expanding, while the water resources necessary to supply this demand are becoming increasingly polluted.[105]

B. *Political Tensions Resulting From Water Scarcity*

In 1986, at their 80th Annual Meeting, the American Society of International Law[106] stated that water is a resource that impacts a region's politics, economics, law, society, and ecology.[107] As a fundamental human necessity,[108] water's impact on a region becomes especially evident when shortages raise tensions between co-riparians, sometimes leading to clashes over the use of a water source.[109] The potential for political tensions to erupt into regional conflict is particularly high in arid areas like the Middle East,[110] where scholars now fear the next war will focus on the distribution of water resources.[111] Conflict over the use of the Jordan[112] and Euphrates River[113] has resulted in

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downstream state might have to perform expensive purification works to alleviate the danger posed to its health and industry. *Id.*

105. WORLD BANK, WATER RESOURCES MANAGEMENT: A WORLD BANK POLICY PAPER 32 (1993). According to recent statistics, close to 50% of U.S. rivers are contaminated with pollutants. *Id.* In addition, the Rhine, Rhone, and Seine Rivers in Europe are polluted, even after years of attempting to minimize the pollution. *Id.*

106. AMERICAN SOCIETY OF INTERNATIONAL LAW, CONSTITUTION OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 5 (1908). The American Society of International Law's goal is to "promote the establishment of international relations on the basis of law and justice. For this purpose it will cooperate with other societies in this and other countries having the same object." *Id.*

107. 80th Proceedings, *supra* note 11, at 258.

108. Lisa M. Jacobs, *Sharing the Gifts of the Nile: Establishment of a Legal Regime for Nile Waters Management*, 7 TEMP. INT'L & COMP. L.J. 95, 95 (1993).

109. LeRoy, *supra* note 51, at 316. In fact, the World is saturated with water-generated tensions. *Id.*

110. *Id.* The most serious tensions are found in arid regions like the Middle East, where disputes over water usage have led to warfare. *Id.*

111. Cohen, *supra* note 11, at 503 n.2. Dr. Boutros Boutros-Ghali, U.N. Secretary General, fears that the next Middle Eastern conflict will have as its focus the allocation of water in the region. Jeffrey Lee & John Bulloch, *Spirit of War Moves on Mid-East Waters; Arab States Fear a Plot to Control Their Supplies of Water*, THE INDEPENDENT, May 13, 1990, at 13. In addition, the Centre for Strategic and International Studies has predicted that the fierce struggle over the Middle East's finite water supply could result in "unprecedented upheaval" as the nations terminate relations with one another. *Study Sees Lack of Water Triggering Mideast Upheavals*, REUTER LIBRARY REPORT, Jan. 21, 1988, at 1.

112. Aaron T. Wolf, *A Hydropolitical History of the Nile, Jordan and Euphrates River Basins, in* INTERNATIONAL WATERS OF THE MIDDLE EAST: FROM EUPHRATES-TIGRIS TO NILE 20, 20 (Asit K. Biswas ed., 1994). Israel, Jordan, and Syria have clashed over the use of the Jordan River. *Id.*

armed clashes, while the use of groundwater in the West Bank[114] has provoked hostility between Israelis and Palestinians.[115] Moreover, U.S. President Dwight Eisenhower's act of sending a special envoy to negotiate a settlement to the issue of the development of the Jordan River's water resources has not resulted in the region's long-term stability.[116]

1. Conflict Over Use of the Jordan River from 1951-55

Israel, Jordan, and Syria each depend on the Jordan River to satisfy their water needs,[117] despite the river's small size.[118] In 1948, Israel devised a national plan for water consumption[119] that would divert the Jordan River's water to the arid southern portion of Israel so that farmers could use the water for irrigation.[120] Israel proposed to replace the lost water with salt water from the Mediterranean Sea.[121] At the same time, Jordan an-

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113. Cohen, *supra* note 11, at 511-12. Iraq, Syria, and Turkey dispute the use of the Euphrates. *Id.*

114. HILLEL, *supra* note 1, at 150. Geographically, the West Bank consists of the central mountainous regions of Palestine (biblical Samaria and Judea). *Id.* at 342. In 1947, the United Nations created a plan that would permit the establishment of one Arab state and one Jewish state on a tract of land in the Middle East. *Id.* at 150. Although the Zionists (Jewish nationalists urging for the creation of a Jewish state) approved the plan, the Arabs rejected the plan and all-out war ensued. *Id.* Following that war, the portion of land set aside for the creation of an Arab state was divided between Egypt and Jordan. *Id.* The King of Jordan named the newly obtained land the "West Bank" of his country. *Id.* The West Bank consists primarily of Palestinians. *Id.*

115. *Id.* at 207. Israeli control of the groundwater resources of the West Bank has provoked anger and hostility in the Palestinian population relying upon this water. *Id.* Use of the term "Palestinian" in this Note only refers to Arab inhabitants of the West Bank and Gaza Strip and does not refer to Palestinian citizens of Israel. *Id.* at 338.

116. Wolf, *supra* note 112, at 21. The United States' intervention began with the arrival of special envoy Eric Johnston to the Middle East. *Id.* He, however, was unable to negotiate a settlement regarding the use of the Jordan River. *Id.*

117. SAMIR N. SALIBA, THE JORDAN RIVER DISPUTE 29 (1968).

118. MIRIAM R. LOWI, WATER AND POWER: THE POLITICS OF A SCARCE RESOURCE IN THE JORDAN RIVER BASIN 28 (1993). The Jordan's flow is between 1200 millions of cubic meters per year ("MCM/yr.") to 1,800 MCM/yr. *Id.* This is equal to 2% of the flow of the Nile, 6% of the Euphrates and less than 1% of the Congo. *Id.*

119. SALIBA, *supra* note 117, at 25.

120. *Id.* at 26. The plan also included draining the Huleh Lake and swamps. Wolf, *supra* note 112, at 20.

121. Wolf, *supra* note 117, at 26. The transfer of seawater into the Jordan would generate hydroelectric power and replace the lost salt water to the Dead Sea. HILLEL, *supra* note 1, at 159. This would keep the already unusable, highly saline water of the Dead Sea at a constant level. *Id.* The high salinity of the Dead Sea is due to the fact that it is the lowest valley on the Earth's continental surface (400 meters below sea level). *Id.* at 333.

nounced its plan to divert water from the Yarmuk River[122] to irrigate the East Ghor of the Jordan Valley.[123] Without obtaining approval from Jordan and the surrounding states, Israel unilaterally executed its national water plan by closing a dam and draining swamps located in a demilitarized zone shared with Syria.[124] This action increased hostilities between Syria and Israel, culminating in several border skirmishes between the two states.[125]

Two years later, in 1953, conflict arose again as Israel began construction of the intake of its National Water Carrier[126] at an area within the demilitarized zone.[127] This construction project incensed Syria, leading it to order artillery units to shoot at the construction site.[128] After further hostilities, mediation by the United States persuaded Israel to move its intake to a different location.[129]

2. U.S. Intervention in the Region

In October of 1953, U.S. President Dwight Eisenhower sent special envoy Eric Johnston to attempt to reach a settlement between Israel and Syria regarding the use of the Jordan River.[130] Johnston advocated adoption of the Main Plan,[131] which provided for dams on the Hasbani,[132] Dan,[133] Banias,[134] and at

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122. GEORGIANA STEVENS, JORDAN RIVER PARTITION 39 (1965). The Yarmuk is a tributary of the Jordan River which separates Jordan and Syria. *Id.* The Yarmuk River is the principal tributary of the Jordan River and also the primary water resource of the Kingdom of Jordan. HILLEL, *supra* note 1, at 342.

123. STEVENS, *supra* note 122, at 39. This project was known as the East Ghor Canal and was Jordan's most significant water development project. HILLEL, *supra* note 1, at 334. The project would divert water from the Yarmuk River to provide farmers, towns, and industries located on the eastern edge of the Jordan Valley, known as the East Ghor, with sufficient supplies of water. *Id.*

124. Wolf, *supra* note 112, at 20.

125. *Id.*

126. SALIBA, *supra* note 117, at 26. The intake of the National Water Carrier would divert the Jordan's flows to provide Israel with hydroelectric power. *Id.*

127. Wolf, *supra* note 112, at 20.

128. John Cooley, *The War Over Water*, FOREIGN POLICY, Spring 1984, at 3, 10.

129. HILLEL, *supra* note 1, at 162.

130. Wolf, *supra* note 112, at 21.

131. *Id.* Johnston's initial proposals were based on the Main Plan. *Id.* The Main Plan was formulated by Charles Main and the Tennessee Valley Authority when they were asked by the United Nations Relief and Works Agency for Palestine Refugees to develop a plan for the allocation of the area's water resources. *Id.* at 21-22. The Main Plan would provide Israel with 394 millions of cubic meters per year of water ("MCM/yr."), Jordan 774 MCM/yr., and Syria 45 MCM/yr. *Id.* at 22.

132. HILLEL, *supra* note 1, at 153. The Hasbani is a headwater of the Jordan which

Maqarin.[135] Subsequently, Israel and the Arab States[136] developed their own plans for proper water allocation,[137] and Johnston attempted to reconcile these plans into a plan agreeable to all sides.[138] The Arab States, however, ultimately did not approve Johnston's plan.[139]

3. Renewed Tension Over the Jordan River in 1964

In 1964, tensions mounted between Israel, Jordan, and Syria as their unilateral development plans came into conflict.[140] That year, Israel began extracting water from the Jordan River for its National Water Carrier.[141] In 1965, the Arab States jointly began construction of a water development project that would divert the headwaters of the Jordan River, reducing the flow to Israel by thirty-five percent.[142] Israel treated this as an intrusion on its

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originates in the western foothills of the Mount Hermon in southeast Lebanon. *Id.* The flow of the Hasbani varies from between 115 and 140 MCM/yr. *Id.*

133. *Id.* The Dan is a spring which originates within the northern portion of Israel. *Id.* It supplies the Jordan River with a constant 245 MCM/yr. *Id.*

134. *Id.* at 153-54. The Banias is a source of the Jordan which originates within the boundaries of pre-1967 Syria, presently Israeli territory, and supplies 120 MCM/yr. *Id.*

135. Wolf, *supra* note 112, at 22. Marqarin is a region on the lower Yarmuk where the Main Plan proposed to build a storage dam. SALIBA, *supra* note 117, at 92.

136. Wolf, *supra* note 112, at 22. The Arab States disputing the allocations of the Jordan River consisted of Jordan, Syria, and Lebanon. *Id.*

137. *Id.* Israel responded with its own plan allocating itself 1290 MCM/yr., Jordan 575 MCM/yr., Syria 30 MCM/yr., and Lebanon 450 MCM/yr. *Id.* The Arab League Technical Committee, composed of representatives from Lebanon, Syria, Jordan, and Egypt proposed their own plan. *Id.* It called for Israel to receive 182 MCM/yr., Jordan 698 MCM/yr., Syria 132 MCM/yr., and Lebanon 35 MCM/yr. *Id.*

138. *Id.* Johnston's proposed plan, later known as the Johnston Plan, gave Israel 400 MCM/yr., Jordan 720 MCM/yr., Syria 132 MCM/yr., and 35 MCM/yr. to Lebanon. HILLEL, *supra* note 1, at 161.

139. Wolf, *supra* note 112, at 23. The Arab League Council rejected the Johnston Plan on political grounds as opposed to the plan's technical matters. STEVENS, *supra* note 122, at 32-33. The Arab League is "[a]n association of Arab nations formed in Cairo on March 22, 1945 in order to consolidate political and other relationships between Member States." OXFORD ENGLISH DICTIONARY (2nd ed. 1989). Essentially, the Arab governments could not "accept a plan that was tantamount to tacit acceptance of Israel's existence." STEVENS, *supra* note 122, at 32-33.

140. Wolf, *supra* note 112, at 24. After the failure of the Johnston Plan in 1955, each state resumed its unilateral plans for the Jordan River. SALIBA, *supra* note 117, at 107.

141. Wolf, *supra* note 112, at 25. The National Water Carrier is Israel's primary water supply system. HILLEL, *supra* note 1, at 338. It principal purpose is to convey water from the Jordan River, lakes, springs, and groundwater to the southern desert of Israel, known as the Negev. *Id.*

142. Wolf, *supra* note 112, at 25.

sovereign rights and ordered the Israeli Army to attack the Arab States' waterworks.[143] Accordingly, the Arab States counter-attacked,[144] with tensions mounting until the commencement of war in 1967.[145]

4. Tension Over the Use of the Euphrates

The headwaters of the Euphrates are in Turkey and, consequently, at least eighty-eight percent of the river's flow is within Turkey.[146] Syria receives the other twelve percent of the Euphrates' flow.[147] Both states possess ambitious water development projects that utilize the Euphrates.[148] In addition, Iraq has projects utilizing the Euphrates for irrigation and hydroelectric power.[149] In total, these three states' projects demand 1.4 times the average flow of the Euphrates.[150]

Begining in the 1970's, tensions erupted over the use of the Euphrates's flow.[151] In 1973, the Keban Dam in Turkey and the Tabqa Dam in Syria were completed by each state, respectively,

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143. *Id.* at 25-26.

144. *Id.* at 26.

145. *Id.* Harvard University political scientist Nadav Safran declared that the Arab States determination to divert the Jordan's water coupled with the Israeli attacks led to "a prolonged chain reaction of border violence that linked directly to the events that led to war" in 1967. Cooley, *supra* note 128, at 16.

146. 80th Proceedings, *supra* note 11, at 254.

147. *Id.*

148. Cohen, *supra* note 11, at 507. Turkey, for example, has built 21 dams and 19 hydroelectric power plants along the river. John Kolars, *Problems of International River Management: The Case of the Euphrates, in* INTERNATIONAL WATERS OF THE MIDDLE EAST 48, 48 (Asit K. Biswas ed., 1994). Turkey is hoping that these waterworks will enable them to develop an additional four to five million acres of new farm land and generate 7513 megawatts of hydroelectric power. *Southeast Anatolia Project is Evolving, Gaining Momentum*, 11 MIDDLE EAST EXECUTIVE REP. 9, 9 (1988). Syria hopes to utilize the Euphrates to irrigate 2500 miles of dry land. Cohen, *supra* note 11, at 509. Although the Syrians have a dam capable of producing 60% of its electricity needs, the water needed to turn the turbines does not always reach the dam. Kolars, *supra* note 148, at 80-81. To raise the level of the water, Syria has initiated the construction of a second dam which might decrease flows to Iraq, a lower riparian of the Euphrates. *Parched: How to Fight Over Water, and Waste it Too*, THE ECONOMIST, May 12, 1990, at 9, 10.

149. Kolars, *supra* note 148, at 83-84. The Iraqis, for example, built the Haditha Dam to generate hydroelectric power and supply water for irrigation projects. *Id.* at 83.

150. 80th Proceedings, *supra* note 11, at 255. The average discharge of the Euphrates is 32,000 MCM/yr. *Id.* Turkey, Syria, and Iraq are presently considering water development projects that will consume 45,000 MCM/yr. *Id.* Iraq has insisted that it receive 18,000 MCM/yr., Syria claims a right to 13,000 MCM/yr., and Turkey demands 14,000 MCM/yr. *Id.* at 254-55.

151. Cohen, *supra* note 11, at 511-12.

which then began to store water behind their gates.[152] Closing the gates of the dams resulted in an eighty percent reduction in the flows of the Euphrates to Iraq,[153] prompting Iraq to petition the Arab League to intervene.[154] Syria, however, only received one-half of its normal flow due to Turkish waterworks upstream[155] and refused to mediate the dispute before an Arab League committee.[156] As a result, Syria and Iraq moved troops to their respective borders and Syria closed its airspace to Iraqi flights.[157] The threat of war was alleviated after Saudi Arabia successfully mediated the dispute.[158]

More recently, on October 21, 1989, a Syrian MIG-21[159] shot down a Turkish survey plane when Turkey threatened to prevent Syria from receiving most of the Euphrates' flow.[160] A few months later, in January 1990, tensions mounted when Turkey cut off the flow of the Euphrates for one month to fill a reservoir behind a Turkish dam.[161] This disruption in water flow heightened Syrian and Iraqi fears that their water needs would be sub-

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152. Wolf, *supra* note 112, at 29.

153. WATER IN THE MIDDLE EAST: CONFLICT OR COOPERATION? 83, 93-94 (Thomas Naff & Ruth C. Matson eds., 1984) [hereinafter Naff & Matson]. The flows to Iraq decreased from 920 cubic meters per second to 197 cubic meters per second. *Id.*

154. Wolf, *supra* note 112, at 29. As a result of the 80% reduction in the flow of the Euphrates, "[i]n April 1975, Iraq called an urgent meeting of the Foreign Ministers of the Arab League to discuss the Crisis." Cohen, *supra* note 11, at 511.

155. Wolf, *supra* note 112, at 29.

156. *Id.* "[A]fter a barrage of mutually hostile statements, [Syria] pulled out of an Arab League technical committee formed to mediate in the conflict." *Id.*

157. *Id.* Syria removed its troops from the Israeli border and placed them on its border with Iraq. Cohen, *supra* note 11, at 512. In addition, it was rumored that Iraq would bomb the Syrian dam at Tabqa. Naff & Matson, *supra* note 153, at 94.

158. Naff & Matson, *supra* note 153, at 94-95. Although Saudi Arabia is credited with reaching the settlement, it is believed that the Soviet Union played an important role in the mediation process. *Id.* The terms of the settlement allegedly stipulated that Syria would retain 40% of the flows of the Euphrates while Iraq would receive the other 60%. *Id.* at 94.

159. RAY BRAYBOOK, THE AIRCRAFT ENCYCLOPEDIA 57 (1985). "The Mikoyan MIG-21 first flew on June 16, 1956, and it is one of the most widely used fighters. Over 10,000 have been built for service in more than 30 countries." *Id.*

160. Joyce R. Starr, *Water Politics in the Middle East*, 7 MIDDLE EAST INSIGHT 64, 64 (1990).

161. Cohen, *supra* note 11, at 513. Turkey sought to partially fill the reservoir behind Turkey's Ataturk Dam. *Id.* Turkish engineers, however, explained that the gates of the Ataturk Dam were closed solely to allow them to work on a diversion tunnel. Clyde Haberman, *Sanliurfa Journal: Dam is Watering Hope for a New Fertile Crescent*, N.Y. TIMES, Mar. 30, 1994, at A4.

ject to the mercy of Turkey's waterworks.[162] Consequently, in June 1990, the three states met in Ankara, Turkey to try to resolve their differences.[163] The meeting, however, collapsed when the parties were unable to reconcile their conflicting water needs.[164]

4. Tension Over Israel's Use of West Bank Water Resources

As a consequence of the 1967 War,[165] Israel obtained control of the West Bank,[166] which contained three aquifers.[167] Since Israeli occupation began, Israel strictly regulated the use of the West Bank's water resources.[168] Israel has prohibited Palestinians from drilling new wells for agricultural purposes, and only occasionally[169] has permitted the drilling of wells for domestic purposes.[170] Additionally, the Israeli Government limited the amount of water a Palestinian could extract from a

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162. Cohen, *supra* note 11, at 513-14. Syria and Iraq were concerned that Turkish waterworks upstream would make them "hydrological dependents." Joyce Starr & Stephen Alley, *Troubled Waters Ahead for Iraqi Irrigation*, FIN. TIMES, Oct. 21, 1988, at 5.

163. Cohen, *supra* note 11, at 514.

164. *Id.* The Iraqi and Syrian representatives demanded that Turkey guarantee them a flow of 700 cubic meters per second of water. Sam Cohen, *Iraq, Syria, Challenge Turkey on Water Use*, CHRISTIAN SCI. MONITOR, July 2, 1990, at 6. The Turks, however, were only willing to promise the Syrians and Iraqis a flow of 500 cubic meters per second, an amount that was rejected by Syria and Iraq. Joshua Sinai, *Water Wars: The Wave Builds in the Middle East*, DEF. & FOREIGN AFF. STRATEGIC POL'Y, Sept. 1990, at 22.

165. Wolf, *supra* note 112, at 31. The 1967 War resulted in the Israeli capture of approximately 50 Syrian villages in the Golan Heights. Cooley, *supra* note 128, at 16. Israel's conquest of the Golan Heights enabled Israel to control virtually all the headwaters of the Jordan River, making an Arab diversionary project impossible. Wolf, *supra* note 112, at 26. In addition, the Israelis began constructing strategically located Jewish settlements in the Golan Heights. Cooley, *supra* note 128, at 16. The 1967 War also provided Israel with dominion of the West Bank. Wolf, *supra* note 112, at 26. The West Bank contained three aquifers and bordered the entire length of the Jordan River. *Id.* Due to Israeli presence along the banks of the Jordan River, Jordan abandoned proposed plans to utilize it. *Id.*

166. Wolf, *supra* note 112, at 31.

167. LOWI, *supra* note 118, at 183. These three aquifers are referred to as the Western, Northern, and Eastern aquifers. *Id.* at 186 (setting forth, in table 8.1, three principal aquifers in West Bank and their annual yield of water).

168. *Id.* at 185.

169. *See id.* at 187 (stating that "[o]cassionally, permission is granted [by the Israelis] for the drilling of wells destined for domestic use"); HILLEL, *supra* note 1, at 207 (finding that "[t]he permission of the Civil Administration [of Israel] was made mandatory for all new well drilling. Approvals have been granted, albeit sparingly, for domestic use but not for the expansion of irrigation").

170. LOWI, *supra* note 118, at 187. Meir-Ben-Meir, Israel's Water Commissioner, has stated that, "[i]f their demand is drinking water, we must say yes . . . . But we are

well.[171] Israel placed restrictions upon water use in the West Bank to ensure that the groundwater was not depleted[172] or rendered unusable.[173]

While restricting Palestinian use of water, however, Israel drilled thirty-six new wells in the West Bank to serve the domestic and irrigation needs of Jewish settlements.[174] In addition, the Israeli wells extended from 200 to 750 meters deep, as opposed to Palestinian wells, which rarely submerged below 100 meters.[175] Consequently, these Israeli policies have heightened Palestinian fears that in years of drought, the deep Israeli wells might desiccate nearby Palestinian wells.[176]

C. *The United Nations and the Draft Articles*

On June 26, 1945, representatives from four governments[177] established the United Nations to accomplish several objectives.[178] The United Nations is intended to preserve international peace and security,[179] to develop friendly relations among

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not going to stop irrigating our orchards so they can plant new ones." Ned Temko, *Water-Toughest Issue on West Bank*, CHRISTIAN SCI. MONITOR, Sept. 18, 1979, at 10.

171. LOWI, *supra* note 118, at 188. The Israelis attached meters to wells to monitor the amount of water taken from a well. *Id.*

172. *Id.* at 186. It was estimated that by 1994 two of the aquifers would have experienced a 33% drop in their water tables. *Id.* Such a drop in the water tables concerns Israel because coastal cities such as Haifa and Tel Aviv rely upon the water from these aquifers. Cooley, *supra* note 128, at 17. The water in the aquifers flows westward toward the wells of Haifa and Tel Aviv only if the water level in the aquifer remains high enough. *Id.* To preserve the westward flow of the groundwater, Israel severely restricts the Arab's water development in the West Bank. *Id.*

173. HILLEL, *supra* note 1, at 201-02. If groundwater is continuously overpumped seawater will eventually enter the aquifer. GORDON, *supra* note 90, at 9-10. Consequently, the groundwater becomes too saline for use without expensive treatment. POSTEL, *supra* note 36, at 32.

174. LOWI, *supra* note 118, at 188.

175. DAVID KAHAN, AGRICULTURE AND WATER RESOURCES IN THE WEST BANK AND GAZA (1967-1987) 167 (1987).

176. *See* LOWI, *supra* note 118, at 189 (stating that "when two wells are located within the effective radius of each other, the deeper one tends to milk the water supply of the shallower one. When this is coupled with absence or sparseness of rainfall, the shallower well is gradually sucked dry").

177. J.G. STARKE, INTRODUCTION TO INTERNATIONAL LAW 631 (10th ed. 1989). The U.N. Charter was created at a Conference held in San Francisco from April 25 to June 26, 1945. *Id.* The "Four Sponsoring Powers" were the United States, Great Britain, the Soviet Union, and China. *Id.*

178. U.N. CHARTER.

179. *Id.* art. 1, ¶ 1.

states,[180] and to foster cooperation in solving international economic, social, cultural, and humanitarian problems.[181] The Charter of the United Nations[182] ("U.N. Charter") formed six principal organs of the United Nations, among them the General Assembly[183] and the Security Council.[184] On November 21, 1947, the General Assembly created the ILC,[185] and on December 8, 1970, asked the ILC to develop draft articles on the Law of the Non-Navigational Uses of International Watercourses.[186] During the Draft Articles' codification efforts, the ILC studied the two prevailing doctrines governing the utilization of a watercourse.[187] Through the principle of equitable utilization,[188] the ILC implicitly reached a compromise between these two doctrines.[189]

1. The Security Council

The Security Council consists of fifteen Members of the United Nations.[190] Five of these fifteen are permanent members of the Security Council[191] and ten are non-permanent members,

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180. *Id.* art. 1, ¶ 2.

181. *Id.* art. 1, ¶ 3.

182. *Id.*

183. *Id.* ch. IV. The General Assembly is the primary deliberative body of the United Nations. BARRY E. CARTER & PHILLIP R. TRIMBLE, INTERNATIONAL LAW 500 (2d ed. 1995). It is comprised of representatives of all Member States, each possessing one vote. *Id.* As a deliberative body, the General Assembly is empowered "with powers of discussion, investigation, review, supervision, and criticism in relation to the work of the United Nations as a whole." STARKE, *supra* note 177, at 637.

184. U.N. CHARTER ch. V. The Security Council is the U.N. organ responsible for the maintenance of international peace and security. CARTER & TRIMBLE, *supra* note 183, at 502.

185. G.A. Res. 174, U.N. Doc. A/RES/174(II) (1947).

186. G.A. Res. 2669, *supra* note 2, at 127, ¶ 1.

187. BRUHACS, *supra* note 33, at 43. The two primary doctrines are the Harmon doctrine and the doctrine of absolute territorial integrity. *Id.* The Harmon doctrine stands for the proposition that a state is unfettered in its utilization of a watercourse while the watercourse is in its territory. *Id.* Absolute territorial integrity limits the expanse of the Harmon doctrine by allowing a state to utilize the waters in its territory only to the extent it causes damage or injury to the territory of a co-riparian. *Id.*

188. *Report of the ILC's Forty-Sixth Session, supra* note 20, at 218. The ILC states that the principle of equitable utilization grants a watercourse state the "right to utilise an international watercourse in an equitable and reasonable manner and the obligation not to exceed its right to equitable utilisation or, in somewhat different terms, not to deprive other watercourse States of their right to equitable utilisation." *Id.*

189. *Draft Articles, supra* note 21, art. 5, at 218.

190. U.N. CHARTER art. 23, ¶ 1.

191. *Id.* The five permanent members of the Security Council are: the Republic

elected by the General Assembly for two-year terms.[192] The primary responsibility of the Security Council is the maintenance of international peace and security.[193] When the Security Council ascertains a threat to international peace, it has the power to maintain international peace and security by exercising economic and military force.[194] The five permanent Security Council Members possess a veto power.[195]

2. The General Assembly

The General Assembly is composed of all the Member States of the United Nations.[196] The U.N. Charter authorizes the General Assembly to discuss,[197] consider,[198] and make recommendations to other constituent bodies of the United Nations on any subject, including issues involving the maintenance of international peace and security.[199] The General Assembly is also empowered to recommend measures to resolve peacefully situations likely to damage friendly relations among states.[200] The U.N. Charter, however, expressly forbids the General Assembly from making recommendations regarding disputes before the Security Council or disputes over which the Security Council is exercising its chartered functions.[201]

3. The ILC

On November 21, 1947, the General Assembly established the ILC.[202] The ILC is comprised of thirty-four experts in inter-

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of China, France, the Union of Soviet Socialist Republics, now the Russian Federation, the United Kingdom, and the United States. *Id.*

192. *Id.* art. 23, ¶ 2.

193. *Id.* art. 24, ¶ 1.

194. *Id.* arts. ¶¶ 24(2), 39, 41, 42.

195. *Id.* art. 27, ¶ 3. Decisions of the Security Council regarding procedural issues require an affirmative vote of nine Security Council members. *Id.* art. 27, ¶ 2. Decisions concerning all other matters require an affirmative vote of nine members, including the concurring votes of all the permanent members. *Id.* art. 27, ¶ 3. Therefore, "if a permanent member [of the Security Council] does not affirmatively vote in favour of a particular decision [regarding a non-procedural issue], that decision is blocked or 'vetoed', and fails legally to come into existence." STARKE, *supra* note 177, at 643.

196. U.N. CHARTER art. 9, ¶ 1.

197. *Id.* art. 10.

198. *Id.* art. 11, ¶ 1.

199. *Id.* art. 11, ¶ 2.

200. *Id.* art. 14.

201. *Id.* art. 12, ¶ 1.

202. G.A. Res. 174, U.N. Doc. A/RES/174(II) (1947).

national law[203] who initiate studies and make recommendations for the purpose of encouraging the progressive development and codification of international law.[204] In 1970, the General Assembly asked the ILC to develop the Law of the Non-Navigational Uses of International Watercourses.[205] By 1974, the ILC had established a subcommittee that produced a report[206] highlighting the need to receive the views of governments on various issues, such as the scope of the study and which uses of water to consider.[207] Subsequently, the ILC distributed a questionnaire to U.N. Member States.[208]

In 1976, the ILC began considering the responses of twenty-one Member States to their questionnaire.[209] In addition, the ILC considered the suggestions of U.S. Permanent Representative Richard D. Kearney, who at that time was the first special rapporteur for the ILC's work on international watercourses.[210]

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203. G.A. Res. 36/39, U.N. GAOR, 36th Sess., U.N. Doc. A/RES/36/39 (1981). Essentially:

> [T]he ILC serves as a bridge between scholars, who receive enhanced authority and status as international consultants through their participation in the ILC's work, and the Sixth (Legal) Committee of the U.N. General Assembly, where representatives of states deliberate over proposals and choose those worthy of being progressively developed.

Rahman, *supra* note 22, at 11.

204. U.N. CHARTER art. 13. Article 13 of the U.N. Charter provides that:

> (1) The General Assembly shall initiate studies and make recommendations for the purpose of:
>
> (a) promoting international cooperation in the political field and encouraging the progressive development of international law and its codification;
>
> (b) promoting international cooperation in the economic, social, cultural, educational, and health fields, and assisting in the realization of human rights and fundamental freedoms for all without distinctions as to race, sex, language, or religion.
>
> (2) The further responsibilities, functions, and powers of the General Assembly with respect to matters mentioned in paragraph 1(b) above are set forth in Chapters IX and X.

Id.

205. G.A. Res. 2669, *supra* note 2, at 127, ¶ 1.

206. *Yearbook of the International Law Commission*, [1974] 2 Y.B. Int'l L. Comm'n, pt. 1, at 301, U.N. Doc. A/CN.4/SER.A/1974/Add.1 [hereinafter *1974 Yearbook*].

207. *Id.* at 300-01.

208. *Id.* at 303-04.

209. *Yearbook of the International Law Commission*, [1976] 2 Y.B. Int'l L. Comm'n, pt. 1, at 147, U.N. Doc. A/CN.4/SER.A/1976/Add.1 [hereinafter *1976 Yearbook*]. Other States submitted their responses to the subcommittee's questions at a later date. [1978] 2 Y.B. Int'l L. Comm'n, pt. 1, at 147, U.N. Doc. A/CN.4/SER.A/1978/Add.1.

210. *1974 Yearbook*, *supra* note 206, at 301.

The Member States' responses and Kearney's suggestions convinced the ILC to focus its initial effort on the formation of the general principles of international watercourses.[211] In 1977, the ILC appointed Professor Stephen M. Schwebel of the United States as the Special Rapporteur.[212] By 1980, the ILC adopted the first six draft articles on the Law of the Non-Navigational Uses of International Watercourses.[213]

In 1983, however, these six draft articles were rejected by Jens Evensen, the third Special Rapporteur.[214] In 1984, Evensen proceeded to modify the draft articles.[215] The next year, Evensen was appointed to the International Court of Justice,[216] forcing the ILC to appoint a new special rapporteur.[217] By 1987, the ILC had re-drafted and adopted articles two through seven,[218] and four years later, adopted the first reading of the draft articles.[219] The ILC then distributed this first reading to governments for their suggestions.[220] During the second reading of the articles, the ILC considered the states' responses[221] as well as the suggestions of the Special Rapporteur.[222] The ILC then adopted the final version of the Draft Articles.[223]

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211. *1976 Yearbook*, *supra* note 209, at 184.

212. *Yearbook of the International Law Commission*, [1977] 2 Y.B. Int'l L. Comm'n, pt. 2, at 124, para. 79, U.N. Doc. A/CN.4/SER.A/1977/Add.1.

213. *Yearbook of the International Law Commission*, [1980] 2 Y.B. Int'l L. Comm'n, pt. 2, at 110-36, U.N. Doc. A/CN.4/SER.A/1980/Add.1.

214. *Yearbook of the International Law Commission*, [1983] 2 Y.B. Int'l L. Comm'n, pt. 1, at 162, U.N. Doc. A/CN.4/SER.A/1983/Add.1.

215. *Yearbook of the International Law Commission*, [1984] 1 Y.B. Int'l L. Comm'n, pt. 1, at 101, U.N. Doc. A/CN.4/SER.A/1984.

216. Stephen C. McCaffrey, *The International Law Commission Adopts Draft Articles on International Watercourses*, 89 AM. J. INT'L L. 395, 397 (1995) [hereinafter *ILC Adoption*].

217. *Id.* The ILC appointed Stephen C. McCaffrey as the next Special Rapporteur. *Id.*

218. *Yearbook of the International Law Commission*, [1987] 2 Y.B. Int'l L. Comm'n, pt. 2, at 25-38, U.N. A/CN.4/SER.A/1987/Add.1.

219. *Report of the International Law Commission of the Work of its Forty-Third Session*, U.N. GAOR, 46th Sess., Supp. No. 10, at 161, U.N. Doc. A/46/10 (1991).

220. *ILC Adoption*, *supra* note 216, at 397.

221. *The Law of the Non-Navigational Uses of International Watercourses, Comments and Observations Received from States*, U.N. Doc. A/CN.4/447/Adds. 1-3 (1993).

222. Robert Rosenstock, *First Report on the Law of the Non-Navigational Uses of International Watercourses*, U.N. Doc. A/CN.4/451 (1993); Robert Rosenstock, *Second Report on the Law of the Non-Navigational Uses of International Watercourses*, U.N. Doc. A/CN.4/462 (1994).

223. *See Draft Articles*, *supra* note 21 (listing 33 Draft Articles for law of non-navigational uses of international watercourses).

4. Historical Doctrines Governing Watercourses

Regardless of whether a river crosses international borders, the river is subject to the sovereignty of the state through which it flows.[224] In fact, customary international law[225] considers a state's utilization of a watercourse as a display of sovereignty.[226] Riparians, however, tend to seize the greatest quantity of water attainable from a watercourse so as to achieve autonomy over its management of water.[227] This inclination has, in turn, led to the development of two contrasting doctrines concerning water use: the Harmon doctrine[228] and absolute territorial integrity.[229] The International Law Association's Helsinki Rules[230] ("Helsinki Rules") developed the principle of equitable utilization to restrict these two doctrines.[231] The ILC, subsequently, adopted the principle of equitable utilization to reach a compromise between the two views.[232]

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224. *See* BRUHACS, *supra* note 33, at 41 (declaring that "[i]t has been beyond doubt, both in international practice and in legal opinion in general that, irrespective of their national or international character, the watercourses belonging to the fluvial territory of a state are subject to the sovereignty of the riparian state, i.e., the state within the territory of which they are found").

225. MALCOLM N. SHAW, INTERNATIONAL LAW 61 (1991). Customary international law consists of state practices that materialize into a legal obligation. *Id.*

226. The Indus Waters Treaty with Pakistan and India, Sept. 19, 1960, art. XI(2), 419 U.N.T.S. 125, (1962), 55 AM. J. INT'L L. 797 (1961).

227. BRUHACS, *supra* note 33, at 42.

228. *Id.* at 43. The Harmon doctrine is also referred to as absolute territorial sovereignty. *Id.* The Harmon doctrine expresses the belief that a state is free to utilize a watercourse in any way it chooses while the watercourse is in its territory. *Id.* This is true even if a state's use results in dire consequences for a co-riparian of the watercourse. *Id.*

229. *Id.* The doctrine of absolute territorial integrity limits the scope of absolute territorial sovereignty by permitting its exercise only so far as it does not cause damage or injury to the territory of another state, since this would infringe upon the territorial sovereignty of that state. LAMMERS, *supra* note 24, at 562.

230. HELSINKI RULES, *supra* note 11, at art. IV.

231. *Id.* The Helsinki Rules adopt equitable utilization as the principle governing the use of an international watercourse. *Id.* This doctrine limits a state's use of a sovereign watercourse by stating that "[e]ach basin state is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin." *Id.*

232. *Draft Articles*, *supra* note 21, art. 5(1), at 218. The principle of equitable utilization is reflected in Article 5 of the Draft Articles which states that "[w]atercourse States shall in their respective territories utilise an international watercourse in an equitable and reasonable manner." *Id.*

a. The Harmon Doctrine

The Harmon doctrine, or absolute territorial sovereignty, originates from an 1895 water dispute between the United States and Mexico.[233] In this dispute, U.S. citizens diverted water from the Rio Grande River[234] while the river passed within U.S. territory.[235] This diversion of water, however, reduced the flow of the Rio Grande River to Mexican farmers.[236] Mexico argued that because their citizens had utilized the Rio Grande's water prior to U.S. citizens, their claim took precedence over a U.S. citizen's claim.[237] U.S. Attorney General Judson Harmon argued that the United States, as the upper riparian, could divert the flows of the Rio Grande, while within its territory, without considering the effect of its action upon a lower riparian.[238] Subsequently, several states have asserted this doctrine to support their use of a watercourse.[239] Today, however, the United States rejects this

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233. Michael D. Hodges, *The Rights and Responsibilities of Using an International Waterway*, 4 J. INT'L L. & PRAC. 375, 376 (1995).

234. LAMMERS, *supra* note 24, at 267 n.5. The Rio Grande River begins in Colorado and flows south through New Mexico to El Paso, Texas, where it serves as the boundary between the United States and Mexico for 1200 miles. *Id.*

235. Hodges, *supra* note 233, at 376.

236. LAMMERS, *supra* note 24, at 267.

237. *Id.* The Mexican Ambassador argued that:

> [T]he principles of international law would form a sufficient basis for the rights of the Mexican inhabitants of the bank of the Rio Grande. Their claim to the use of the water of that river is incontestable, being prior to that of the inhabitants of Colorado by hundreds of years and according to the principles of civil law, a prior claim takes precedence in case of dispute.

Mexican Ambassador Romero to Secretary of State Olney, 21 October 1895, American and British Claims Arbitration No. 83, The Rio Grande Claim, Appendix to the Answer of the United States 1923, at 200, 202.

238. 21 Op. Att'y Gen. 274, 280-83 (1895), *in* J.B. MOORE, INTERNATIONAL LAW DIGEST, Vol. 1 (1906). Harmon stated that:

> The fact that the Rio Grande lacks sufficient water to permit its use by inhabitants of both countries does not entitle Mexico to impose restrictions on the United States which would hamper the development of the latter's territory or deprive its inhabitants of an advantage with which nature had endowed them and which is situated entirely within its territory. To admit such a right would be completely contrary to the principle that the United States exercises full sovereignty over its natural territory . . . .

Id.

239. BRUHACS, *supra* note 33, at 44. The United States, Austria, Chile, Ethiopia, the Federal Republic of Germany, and India, at one time, adhered to the principle of absolute territorial sovereignty. *Id.*

doctrine[240] as do most other states.[241]

b. Absolute Territorial Integrity

The converse of the Harmon doctrine is the principle of absolute territorial integrity,[242] which forbids a riparian state from developing a watercourse in a way that causes harm to a co-riparian's use of the watercourse.[243] Because this doctrine tends to favor the downstream state,[244] several lower riparians have argued for application of this principle.[245] This theory, however, has generally received little support in the international legal community,[246] and is applied only where the lower riparian's survival depends upon receiving water from the upstream state.[247]

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240. DAVID R. DEENER, THE UNITED STATES ATTORNEYS GENERAL AND INTERNATIONAL LAW 253-57, 308-09 (1957).

241. James O. Moermond III & Erickson Shirley, *A Survey of the International Law of Rivers*, 16 DENV. J. INT'L L. & POL'Y 139, 141 (1987). Ethiopia is one state that still adheres to the Harmon doctrine. BONAYA A. GODANA, AFRICA'S SHARED WATER RESOURCES 36 (1985).

242. BRUHACS, *supra* note 33, at 43. One way to express this doctrine is to say that "lower riparians have an absolute right to have an uninterrupted flow of the river from the territory of the upper riparian, no matter what the priority." David J. Lazerwitz, Note, *The Flow of International Water Law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses*, 1 IND. J. GLOBAL LEGAL STUD. 247, 251 (1993).

243. LAUTERPACHT, OPPENHEIM'S INTERNATIONAL LAW: A TREATISE 290-91 (8th ed. 1955). Lauterpacht summed up this doctrine by stating that:

> [A] State, in spite of its territorial supremacy, is not allowed to alter the natural conditions of its own territory to the disadvantage of the natural conditions of the territory of a neighbouring State - for instance, to stop or to divert the flow of a river which runs from its own into neighbouring territory.

Id.

244. BRUHACS, *supra* note 33, at 44.

245. *Id.* Argentina, Egypt, Spain, and Bangladesh have asserted this doctrine. *Id.*

246. *See, e.g.*, Moermond & Shirley, *supra* note 241, at 143. Absolute territorial integrity's lack of support in the international community is due to the fact that it is viewed as unfairly placing a burden on upper riparians without placing a burden upon downstream states. Lazerwitz, *supra* note 242, at 251. The United States Supreme Court, for example, has rejected this doctrine because it would give the downstream State complete control over the water source. *See* Colorado v. Kansas, 320 U.S. 383 (1943), New Jersey v. New York, 283 U.S. 336, 342 (1931); Connecticut v. Massachusetts, 282 U.S. 660, 669-70 (1931).

247. GODANA, *supra* note 241, at 39.

c. Compromise Between the Two Doctrines: Restricted Territorial Sovereignty and Restricted Territorial Integrity

The ILC has argued that the common law maxim "*sic utere tuo ut alienum non laedas*"[248] ("*sic utere*"), articulates the sovereign equality of states.[249] For instance, a state's right to use the waters within a watercourse must reflect the needs of that state to utilize such resources.[250] The counterpart to the "*sic utere*" maxim in international water law is restricted territorial sovereignty and restricted territorial integrity.[251] These two doctrines prohibit a riparian from injuring a co-riparian.[252] Moreover, they are equitable principles, stating that use of a watercourse is unlawful if the harm caused by the activity outweighs its benefit.[253] Recognizing these doctrines' ability to balance states' interests, the Helsinki Rules adopted these doctrines under the guise of equitable utilization.[254] The International Law Association's[255] status as an unofficial organization, however, prevents their resolutions from becoming binding unless followed by states as part of state practice[256] or adopted in a multilateral convention.[257]

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248. *Report of the International Law Commission of the Work of its Fortieth Session*, 43 U.N. GAOR Supp. No. 10, at 83, U.N. Doc. A/43/10 (1988) [hereinafter *Report of the ILC's Fortieth Session*]. Sic utere tuo ut alienum non laedas is a "[c]ommon law maxim meaning that one should use his own property in such a manner as not to injure that of another." BLACK'S LAW DICTIONARY 1380 (6th ed. 1990). It is generally agreed, however, that this principle permits river use which is harmful so long as the activity does not cause substantial harm. LAMMERS, *supra* note 24, at 571.

249. *Report of the ILC's Fortieth Session*, *supra* note 248, at 83.

250. Moermond & Shirley, *supra* note 241, at 146.

251. Lazerwitz, *supra* note 242, at 251. Restricted territorial sovereignty and integrity represent a hybrid and compromise between the extreme concepts of absolute territorial sovereignty and absolute territorial integrity. Moermond & Shirley, *supra* note 241, at 145.

252. Moermond & Shirley, *supra* note 241, at 146.

253. *Id.*

254. HELSINKI RULES, *supra* note 11, art. IV. Equitable utilization always requires the arbiter to balance the interests of each side. GODANA, *supra* note 241, at 58. Thus, wherever a conflict between uses arises, the decision-maker must balance the benefit to one state against the loss to the other. *Id.*

255. INTERNATIONAL LAW ASSOCIATION, REPORT OF THE FORTY-SIXTH CONFERENCE HELD AT EDINBURGH x (1954). The International Law Association was founded in Brussels in 1873. *Id.* The Association seeks to establish "on a scientific basis the foundations of international jurisprudence." *Id.* To uncover the bases of international jurisprudence it "welcomes to its membership not only lawyers, . . . [but] all who, from whatever point of view, are interested in the improvement of international relations." *Id.*

256. REBECCA M.M. WALLACE, INTERNATIONAL LAW 8 (1986). State practice or custom evolves out of states' relations with one another. *Id.* As states replicate certain

II. *THE DRAFT ARTICLES AND THE CURRENT SITUATION IN THE MIDDLE EAST*

In 1970, the General Assembly assigned the ILC the task of developing the Law of the Non-Navigational Uses of International Watercourses.[258] By 1994, the ILC had adopted the text of the Draft Articles.[259] Currently, the scarcity of water in the Middle East has provided an impetus for cooperation in the Middle East as states have commenced peace talks discussing the possibility of cooperation over water issues.[260] The ILC's Draft Articles provide states with the operative legal principles in water law which were previously lacking in the Middle East.[261]

A. *The Draft Articles*

The Draft Articles represent an effort to regulate the use of international water resources so that states might meet their future water needs.[262] Moreover, the ILC's Draft Articles fill a chasm in international law by creating a document that unequivocally expresses the principles governing the utilization of an international watercourse.[263] The first ten articles set forth the terms and general principles used in the Draft Articles.[264]

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accepted norms of behavior when interacting with one another, these norms develop into rules of customary international law. *Id.*; *see supra* note 225 (noting that customary international law consists of state practices that materialize into legal obligation).

257. BABU RAN CHAUHAN, SETTLEMENT OF INTERNATIONAL WATER LAW DISPUTES IN INTERNATIONAL DRAINAGE BASINS 426 (1981).

258. G.A. Res. 2669, *supra* note 2, at 127, ¶ 1.

259. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 326; *Draft Articles*, *supra* note 21.

260. Wolf, *supra* note 112, at 37.

261. 80th Proceedings *supra* note 11, at 259. Thomas Naff stated that:

> Firm rules of law, together with necessary legal structures responsible for effective application, remain largely missing among parties to water issues in the Middle East. Consequently, legal principles involved in international water conflicts can and indeed have been argued in contradictory and mutually exclusive ways. This has allowed water issues to be manipulated as part of the power relationship throughout the Middle East without the legal instruments or precedents for settling water conflicts.

Id.

262. Ved. P.Nanda, *The Law of the Non-Navigational Uses of International Watercourses: Draft Articles on Protection and Preservation of Ecosystems, Harmful Conditions and Emergency Situations, and Protection of Water Installations*, 3 COLO. J. INT'L ENVTL. L. & POL'Y 175, 175-76 (1992).

263. Rahman, *supra* note 22, at 18-19.

264. *Draft Articles*, *supra* note 21, arts. 1-10, at 197-259.

1. General Purposes and Goals

The ILC's Draft Articles aim to serve as a framework upon which states can conclude agreements that incorporate the unique qualities of their respective watercourses.[265] This framework was also intended to ensure the global approval of the Draft Articles.[266] To serve as a framework, the Draft Articles begin by defining what constitutes a watercourse.[267] A watercourse is defined as a "system" of surface and groundwaters that intersect with one another in a common terminus.[268] Confined groundwater, that does not intersect with surface water, is excluded from the Draft Articles' coverage.[269] Confined groundwater is excluded even though international groundwater law is nearly nonexistent.[270] The ILC, however, does provide a separate resolution concerning the use of confined groundwater.[271]

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265. *See Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 392 (stating that text resulting from ILC's work in this area is to serve as manual containing "general principles and rules to assist states in resolving problems and, as necessary and appropriate, in negotiating bilateral and regional solutions or agreements" and illustrating how Draft Articles are to serve as framework). Evidence of the framework nature of the Draft Articles is seen in Article 3 which allows states to "apply and adjust the provisions of the present articles to the characteristics and uses of a particular international watercourse or part thereof." *Draft Articles*, *supra* note 21, art. 3(1), at 206. One scholar has argued that states do not need a flexible framework agreement because the legal principles, themselves, are adaptable to different situations. *See* Robert D. Hayton, *Observations on the International Law Commission's Draft Rules on the Non-Navigational Uses of International Watercourses: Articles 1-4*, 3 COLO. J. INT'L ENVTL. L. & POL'Y 31, 40-41 (1992) (stating that in "law of real property, from which water law is historically derived, and which contains many general principles and rules applicable to real estate. But each parcel varies from all others . . . . Every piece of real property is unique, ... Yet numerous property law propositions apply despite the variabilities").

266. *See* Rahman, *supra* note 22, at 16 (declaring that "increased flexibility in the final document would permit more states to adapt their general rules to the specific watercourse regime, and hence, would lead to a wider acceptance and recognition").

267. *Draft Articles*, *supra* note 21, art. 2(b), at 199.

268. *See id.* (stating that "watercourse means a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus").

269. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 201. It "follows from the unity of the [watercourse] system that the term "watercourse" does not include "confined" groundwater, i.e., that which is unrelated to any surface water." *Id.* Such unconnected groundwater is referred to as "confined groundwater." GORDON, *supra* note 90, at 4-5. This water is beneath stratum of relatively impenetrable material and, as a result, is replenished very slowly. *Id.* at 5.

270. Melissa Crane, *Diminishing Water Resources and International Law: U.S.-Mexico, A Case Study*, 24 CORNELL INT'L L.J. 299, 299 (1991).

271. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, ay 326. The resolution:

1. Commends States to be guided by the principles contained in the draft

In addition, a watercourse includes the water within it,[272] the water diverted from it,[273] and the watercourse's bed, banks, and dikes.[274]

2. Equitable Principles

Article 5[275] begins the Draft Articles' discussion of the general principles applicable in the Law of the Non-Navigational Uses of International Watercourses.[276] More specifically, Article 5 defines a state's rights and obligations when it utilizes a watercourse for a non-navigational use.[277] The first concept set forth by the ILC is "equitable utilization."[278]

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articles on the law of the non-navigational uses of international watercourses, where appropriate, in regulating transboundary groundwater;

2. Recommends States to consider entering into agreements with the other States or States in which the confined transboundary groundwater is located;

3. Recommends also that, in the event of any dispute involving transboundary confined groundwater, the States concerned should consider resolving such dispute in accordance with provisions contained in article 33 of the draft articles, or in such other manner as may be agreed upon.

Id.

272. *Draft Articles*, *supra* note 21, art. 1(1), at 197. Article 1(1) states that, "[t]he present articles apply to uses of international watercourses and of their waters." *Id.* The addition of "and of their waters" makes the inclusion of water clear. *Id.*

273. *See Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 198 (stating explicitly that Articles will apply to water diverted from watercourse).

274. Hayton, *supra* note 265, at 32. The inclusion of a watercourse's bed, banks, and dikes was implied when the drafters attached the phrase "and of their waters" to the term international watercourses. *Id.*

275. *Draft Articles*, *supra* note 21, art. 5, at 218. Article 5 states that:

1. Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal utilization thereof and benefits therefrom consistent with adequate protection of the watercourse.

2. Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to co-operate in the protection and development thereof, as provided in the present articles.

Id.

276. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 218.

277. *Id.*

278. *Draft Articles*, *supra* note 21, art. 5(1), at 218. Stephen McCaffrey notes that, according to many experts, equitable utilization is central to international water law. Stephen C. McCaffrey, *The Law of International Watercourses: Some Recent Developments and Unanswered Questions*, 17 DENV. J. INT'L L. & POL'Y 505, 509 (1989).

a. The Principle of Equitable Utilization

The second sentence of Paragraph 1 of Article 5 of the Draft Articles clarifies what constitutes an "equitable utilization"[279] of a watercourse.[280] If a state develops a watercourse, it must intend to optimally utilize the watercourse while also guaranteeing that any benefits derived from the watercourse do not threaten the protection of the watercourse.[281] The ILC indicates that a state is optimally utilizing a watercourse when all the watercourse states derive the optimal benefits and fulfillment of their needs from the watercourse, while simultaneously minimizing the harm to each watercourse state.[282] Concurrent with the realization of optimal utilization, states should develop and manage water resources in a manner that respects the many ecological, economic, and social issues surrounding water use.[283]

Where several states clash over a specific use of a watercourse, the principle of equitable utilization is applied to ascertain whether the use is equitable.[284] To determine whether a state's use of a watercourse is an equitable utilization, an arbiter must balance the benefits enjoyed by one state against the impact its use has upon another's use of the watercourse.[285] Equitable utilization, therefore, allows an arbiter to assess all the relevant facts and circumstances in determining the proper allocation of the resources of a watercourse.[286]

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279. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, 218. Equitable utilization grants states the right to an equitable and reasonable share of the uses and benefits of a watercourse while also limiting such utilization to the extent it deprives a co-riparian of its right to equitable utilization. *Id.* Essentially, equitable utilization permits states to "utilize [a watercourse] to the extent that its utilization does not interfere with the corresponding [equitable] utilization of other basin states." Jonathan M. Wenig, *Water and Peace: the Past, the Present, and the Future of the Jordan River Watercourse: An International Law Analysis*, 27 N.Y.U.J. INT'L L. & POL. 331, 337 (1995).

280. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 218.

281. *Draft Articles*, *supra* note 25, art. 5(1), at 218.

282. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 218. The drafters emphasize that optimal utilization is different from the maximal or most technologically efficient use of the watercourse. *Id.* at 218-19. Optimal utilization is not concerned with an efficient or productive use of the watercourse as much as it is concerned with ensuring that all states receive the most benefits from that watercourse while suffering the minimal amount of harm. *Id.* at 219.

283. *Id.*

284. Wenig, *supra* note 279, at 345.

285. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 219.

286. McCaffrey, *supra* note 272, at 509. McCaffrey supplies a concrete example of

Subsection one of Article 7[287] recognizes that, in some cases, achievement of equitable utilization will require some watercourse states to endure a certain degree of harm.[288] Article 7, however, prohibits conduct that causes "significant harm."[289] The ILC included Article 7 in the Draft Articles, in part, because it felt that Article 5 would not supply states with enough guidance where harm was a factor.[290]

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the process an arbiter must go through in determining an equitable utilization of water by stating that:

> For example, a downstream state that was first to develop its water resources could not foreclose later development by an upstream state by demonstrating that the later development would cause it harm; under the doctrine of equitable utilization, the fact that the downstream state was "first to develop" (and thus had made prior uses that would be adversely affected by new upstream uses) would be merely one of a number of factors to be taken into consideration in arriving at an equitable allocation of the uses and benefits of the watercourse.

Id. Article 6 of the Draft Articles supplies some factors relevant to determination as to what is an equitable utilization of the watercourse. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 221. Article 6 states that:

> 1. Utilization of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including:
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> (a) geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
>
> (b) the social and economic needs of the watercourse States concerned;
>
> (c) the population dependent on the watercourse in each watercourse State;
>
> (d) the effects of the use or uses of the watercourse in one watercourse State on other watercourse States;
>
> (e) existing and potential uses of the watercourse;
>
> (f) conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
>
> (g) the availability of alternatives, of corresponding value, to a particular planned or existing use.
>
> 2. In the application of article 5 or paragraph 1 of this article, watercourse States concerned shall, when the need arises, enter into consultations in a spirit of co-operation.

Draft Articles, *supra* note 21, art. 6, at 231.

287. *Draft Articles*, *supra* note 21, art. 7(1), at 236. Article 7(1) provides that: "Watercourse States shall exercise due diligence to utilize an international watercourse in such a way as not to cause significant harm to other watercourse States." *Id.*

288. *Report of the ILC's Fortieth Session*, *supra* note 248, at 84.

289. *Draft Articles*, *supra* note 21, art. 7, at 236. Significant harm is defined by the ILC as harm that a state can establish by objective evidence. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 237. The ILC states that while trivial damage will not suffice, the injured state does not have to prove substantial harm. *Id.*

290. *See Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 236 (stating that "arti-

b. The Principle of Equitable Participation

Paragraph 2 of Article 5 sets forth the principle of equitable participation.[291] This concept embodies both an obligation and a right.[292] First, watercourse states have an obligation to participate jointly in the protection and development of a watercourse.[293] Second, states have the right to expect the cooperation of other watercourse states in matters concerning the watercourse.[294] The ILC granted this right because it believed that advice from technical experts would allow each state to receive the greatest amount of benefits from the watercourse while equitably allocating water among co-riparians and protecting the watercourse itself.[295]

c. The Importance of Cooperation between Watercourse States

The ILC created Article 8[296] to emphasize the importance of cooperation between states in developing watercourses.[297] The ILC defines the objectives of cooperation in general terms so that such objectives would apply to a broad range of watercourses.[298] Consequently, the aim of cooperation is to achieve the optimal utilization and preservation of an international wa-

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cle 5 alone did not provide sufficient guidance for States in cases where harm was a factor"). The presence of harm does not necessarily render a use of a watercourse unreasonable. *Id.* Instead, the principle of equitable utilization "remains the guiding criterion in balancing the interests at stake." *Id.*

291. *Draft Articles, supra* note 21, art. 5(2), at 218. The principle of equitable participation provides states with the right and the duty to cooperate with other watercourse states. *Report of the ILC's Forty-Sixth Session, supra* note 20, at 220.

292. *Report of the ILC's Forty-Sixth Session, supra* note 20, at 220.

293. *Id.*

294. *Id.* The ILC demonstrates the breadth of this right to cooperation by envisioning a right in "flood-control measures, pollution-abatement programmes, drought-mitigation planning, erosion control, disease vector control, river regulation (training), the safeguarding of hydraulic works and environmental protection." *Id.*

295. *Id.*

296. *Draft Articles, supra* note 21, art. 8, at 244. Article 8 states that: "[w]atercourse States shall co-operate on the basis of sovereign equality, territorial integrity and mutual benefit in order to attain optimal utilization and adequate protection of an international watercourse." *Id.*

297. *Report of the ILC's Forty-Sixth Session, supra* note 20, at 244-45. The drafters noted that "co-operation between watercourse States . . . also forms the basis for the regular exchange of data and information under article 9." *Id.* at 249.

298. *Id.* at 245. The ILC claimed that "a general formulation would be more appropriate, especially in view of the wide diversity of international watercourses and the uses thereof, and the needs of watercourse States." *Id.*

tercourse.[299]

d. Article 9: Facilitating Cooperation and Helping to Ensure the Equitable Utilization of an International Watercourse

Article 9[300] demonstrates that the ILC recognized the need for states to exchange data and information to guarantee an equitable utilization of an international watercourse.[301] The drafters of the Draft Articles note that states cannot apply Article 6,[302] which requires states to examine all relevant circum-

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299. *Draft Articles*, *supra* note 21, art. 5(1), at 218.

300. *Id.* art. 9, at 249. Article 9 consists of three paragraphs which state that:

1. Pursuant to article B, watercourse States shall on a regular basis exchange readily available data and information on the condition of the watercourse, in particular that of a hydrological, meteorological, hydrogeological and ecological nature, as well as related forecasts.

2. If a watercourse State is requested by another watercourse State to provide data or information that is not readily available, it shall employ its best efforts to comply with the request but may condition its compliance upon payment by the requesting State of the reasonable costs of collecting and, where appropriate, processing such data or information.

3. Watercourse States shall employ their best efforts to collect, and where appropriate, to process data and information in a manner which facilitates its utilization by the other watercourse States to which it is communicated.

Id.

301. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 250.

302. *Draft Articles*, *supra* note 21, art. 6, at 231. Article 6 states that:

1. Utilization of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including:

(a) geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;

(b) the social and economic needs of the watercourse States concerned;

(c) the population dependent on the watercourse in each watercourse State;

(d) the effects of the use or uses of the watercourse in one watercourse State on other watercourse States;

(e) existing and potential uses of the watercourse;

(f) conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;

(g) the availability of alternatives, of corresponding value, to a particular planned or existing use.

2. In the application of article 5 or paragraph 1 of this article, watercourse States concerned shall, when the need arises, enter into consultations in a spirit of co-operation.

Id.

stances,[303] without data revealing the state of the water source.[304] In turn, if states do not comply with Article 6 they cannot operate a water project according to the rule of equitable utilization.[305] The ILC stresses that states must exchange information concerning the condition of the watercourse.[306] The information is to include ecological data, information depicting the state of the watercourse, forecasts of the weather, and descriptions of the current flows within the watercourse.[307] The ILC, however, requires the exchange of such data only if it is readily available,[308] intentionally avoiding language that places a heavy burden upon watercourse States.[309]

In cases where such data or information is not readily available, Paragraph 2 of Article 9 becomes relevant.[310] In this situation, the state must employ its "best efforts"[311] in responding to a request for data.[312] In addition, Article 9(3) requires states to process the obtained data in a way that will facilitate the utilization of the watercourse by other states.[313] Article 9, by requiring states to cooperate with one another in the exchange of data concerning a watercourse, therefore, represents a concrete example of the principle of cooperation described in Article 8.[314]

e. Default Rule

Article 10(1)[315] articulates the principle that one use of an

303. *Id.* art. 6(1), at 231.

304. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 250.

305. *Id.*

306. *Id.* at 253.

307. *Id.* at 254.

308. *Id.* The ILC defines information which is "readily available" as information which is "readily at [a State's] disposal, for example, that which it has already collected for its own use or is easily accessible." *Id.* at 252.

309. *Id.* at 254. "If data and information concerning the condition of the watercourse is "readily available", the Commission believed that requiring the exchange of such data and information would not be excessively burdensome." *Id.*

310. *Id.*

311. *Id.* The ILC states that "best efforts" require a state to "act in good faith and in a spirit of co-operation in endeavouring to provide the data or information sought by the requesting watercourse State." *Id.*

312. *Id.*

313. *Draft Articles*, *supra* note 21, art. 9(3), at 250.

314. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 250. "The rules in this article thus constitute a specific application of the general obligation to co-operate laid down in article 8." *Id.*

315. *Draft Articles*, *supra* note 21, art. 10, at 256. Article 10 states that:

international watercourse may enjoy inherent priority over another use.[316] The ILC drafted this paragraph in a way which gave states the ability to place a specific value upon each use so long as such value is based on either agreement or custom.[317] Paragraph 2 of Article 10 discusses the situation in which certain uses of a watercourse conflict with each other and the states have not established any priorities either by agreement or custom.[318] In such a situation, the conflict is resolved by the factors set out in Articles 5 to 7.[319] The ILC, however, emphasizes that states should pay special attention to the requirements of vital human needs.[320] In addition, states are to regard these needs in conjunction with the factors outlined in Article 6.[321]

B. *Current Situation in the Middle East*

Already, the Middle East is one of the World's most arid regions.[322] Presently, nine of the fourteen states in the Middle East experience water-scarcity.[323] In six of these states, the population is projected to double within approximately twenty years.[324] Failure to find an agreeable allocation of water among the states in the future, therefore, could ignite the tensions within the region.[325]

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1. In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses.

2. In the event of a conflict between uses of an international watercourse, it shall be resolved with reference to the principles and factors set out in articles 5 to 7, with special regard being given to the requirements of vital human needs.

Id.

316. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 256.

317. *Id.*

318. *Draft Articles*, *supra* note 21, art. 10(2), at 256.

319. *Id.*

320. *Report of the ILC's Forty-Sixth Session*, *supra* note 20, at 257. Human needs include: "sufficient water to sustain human life, including both drinking water and water required for the production of food in order to prevent starvation." *Id.*

321. *Id.* at 258.

322. *See* POSTEL, *supra* note 36, at 29 (noting that because approximately 64% of states in Middle East experience water-scarce conditions, it is "the most concentrated region of water scarcity in the world").

323. *Id.* at 30 (setting forth, in Table 2-1, that Bahrain, Israel, Jordan, Kuwait, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen are nine Middle Eastern States currently experiencing conditions of water scarcity).

324. *Id.* (setting forth, in Table 2-1, that populations of Jordan, Kuwait, Saudi Arabia, Syria, United Arab Emirates, and Yemen will double in 25 years).

325. *Id.* "With virtually all Middle East rivers being shared by several nations, ten-

1. Groundwater

Israel's management of the West Bank's limited water resources has intensified the tension between the Palestinians and the Israelis.[326] Although the Palestinians have strongly objected to Israeli control over the West Bank's groundwater,[327] Israel has been unwilling to relinquish control over the resources of the West Bank.[328] In addition, Israel uses ninety percent of the water of two of these aquifers,[329] enabling Israelis to consume up to four times the amount of water that Palestinians consume.[330] At the same time, Israel still forbids Palestinians from digging new wells.[331] Furthermore, Israel might rely more upon the groundwater resources of the West Bank as other groundwater resources become contaminated.[332] If a future Palestinian state were to drill new wells, however, Israel's supply of water would decrease.[333] Consequently, the West Bank's future water supply will depend upon a distribution of its water resources in a manner agreeable to both sides.[334]

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sions over water rights are a potent political force throughout the region, and could ignite during this decade." *Id.*

326. Wolf, *supra* note 112, at 32.

327. *Id.* at 33.

328. LOWI, *supra* note 118, at 191. Access to the water of the West Bank is the only water-related issue that Israel views as a potential source of conflict between itself and the Arab States. *Id.* Israel is sensitive to the water of the West Bank because it receives one-quarter of the water it consumes from that region, making it unlikely to give the Arabs control of the area. *Id.*

329. *As thick as blood*, THE ECONOMIST, Dec. 23, 1995, at 4.

330. *Id.* The Israelis in the West Bank consume 250 liters per capita per day, 280 liters for Israelis in Israel proper, and 85 liters for Palestinians. *World Bank Says $600 m needed in the Occupied Territories*, FIN. TIMES, Feb. 23, 1994, at 2. In fact, Israel is using 95% of all renewable resources available to it and consumes five times as much water as the people of the neighboring states. Joyce R. Starr & Daniel C. Stoll, *Mideast Heads for Wars over Water; Rapidly Diminishing Supplies Aggravate Historical Enmities*, L.A. TIMES, May 6, 1987, at 1.

331. *As thick as blood*, *supra* note 329, at 5. Israel is claiming that it is entitled to control over the West Bank's water resources because Israeli use of the water was prior to Palestinian use. Sharif S. Elmusa, *Dividing Common Water Resources According to International Water Law: The Case of the Palestinian-Israeli Waters*, 35 NAT. RESOURCES J. 223, 230 (1995).

332. POSTEL, *supra* note 36, at 77. In 1992, 20% of key groundwater resource in Israel was contaminated by pollution and it was predicted that within several years 20% of the wells utilizing that groundwater would have to be closed. *Id.*

333. *See* HILLEL, *supra* note 1, at 39 (predicting that "[s]hould the Palestinians, after achieving independence, undertake intensive well drilling and pumping in their domain, the amount of water available to Israel could diminish markedly").

334. *Id.* at 209.

2. Surface Water

Use of the Jordan River continues to generate regional tension.[335] Under the terms of the 1994 peace treaty between Israel and Jordan,[336] Jordan's share of the water from the Jordan River is scheduled to increase.[337] The populations of Syria, Jordan, and Israel, however, are growing at an average of three percent per year.[338] In addition, Syria and Jordan have agreed to build a dam on the Yarmuk River to supply water to Jordan and electrical power to Syria.[339] Syria has increased its withdrawals from the headwaters of the Yarmuk,[340] leaving less water for Jordan if the proposed dam is built.[341] As a consequence, tensions may increase over the use of the Jordan.[342]

On the Euphrates, the potential for tension between Turkey, Iraq, and Syria remains.[343] As Turkey continues to construct more dams, Turkey will extract more water, leaving less for Syria and Iraq downstream.[344] Once Turkey completes all of its proposed water projects, Syria could lose forty percent of the nor-

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335. *As thick as blood*, *supra* note 329, at 4.

336. Israel-Jordan: Common Agenda for the Bilateral Peace Negotiations, Sept. 14, 1993, 32 I.L.M. 1522 [hereinafter Common Agenda].

337. *As thick as blood*, *supra* note 329, at 4.

338. Peter H. Gleick, *Water, War and Peace in the Middle East*, ENVIRONMENT, April 1994, at 3. This rate does not include any increases due to migration. *Id.* Jordan's population is growing at a rate of 3.4% per year, which will result in a 40% increase in water demand by the year 2000. POSTEL, *supra* note 36, at 74. At the same time, Jordan has received 350,000 Palestinian refugees from Kuwait and other Gulf States. HILLEL, *supra* note 1, at 38-39. In addition, Israel, which is already exceeding its renewable water supply by 15%, is estimated to absorb one million Soviet Jews by the end of the decade. POSTEL, *supra* note 36, at 74.

339. HILLEL, *supra* note 1, at 38.

340. CLARKE, *supra* note 55, at 102. Syria is planning to divert 40% of the Yarmuk's water into its irrigation system. *Id.*

341. HILLEL, *supra* note 1, at 38.

342. Sandra Postel, *Crisis on Tap: A World Without Water*, WASHINGTON POST, Oct. 29, 1989, at 2. By the end of this decade, Israel's demand for water could be 30% greater than its supply. *Id.* At the same time, Jordan will experience a 50% increase in its water demand by 2005. *Id.* Furthermore, the upper riparian of the Jordan, Syria, will experience water shortages by the year 2000 and might seek to extract additional supplies of water from the Jordan. *Id.*

343. *See* HILLEL, *supra* note 1, at 37 (outlining present potential for strife over use of Euphrates River).

344. *Id.* Turkey is currently engaged in an ambitious water development project which calls for the construction of 13 hydroelectric and irrigation projects on the Euphrates. *Id.*

mal flow of the Euphrates.[345] At the same time, Iraq may lose up to eighty percent of the flows of the Euphrates due to Turkish and Syrian waterworks upstream.[346] As a result, Syria and Iraq could clash over the use of the Euphrates or Syria and Iraq might unite and confront Turkey's disproportionate diversion of the Euphrates.[347]

3. Negotiations between Middle Eastern States

On October 30, 1991, Israel and the Arab States conducted their first face-to-face peace talks.[348] At this meeting, the states agreed to establish multilateral negotiations concerning the use of water resources.[349] Consequently, in May 1992 in Vienna, the first round of multilateral negotiations on water were held.[350] At this meeting, each state agreed to devise a programme for regional development.[351] The United States, in turn, analyzed these plans for the presence of common state aims which might facilitate cooperation.[352]

4. Water Issues in the Context of the Peace Process

The realization of lasting peace in the Middle East is anticipated to confront the issue of water scarcity.[353] As a result, some scholars argue that Middle East peace accords should contain clauses discussing water issues.[354] On October 26, 1994, Israel and Jordan signed a peace treaty[355] which included a provision

345. *Id.* This could happen while Syria's population is expanding from 14 million to 22 million. *Id.*

346. *Id.* "Affected by both Syria's and Turkey's water withdrawals, Iraq may lose as much as 80% of its flow from the Euphrates." *Id.* Exacerbating Iraq's dilemma is the fact that it has a larger population than Syria. *Id.*

347. *Id.* at 110. Iraq's agricultural sector is particularly vulnerable to any further reductions in the volume of water flowing into Iraq's borders. *Id.* In the case that less water reaches Iraq, "[c]onflict over water will then be more than likely between Syria and Iraq, or (what with the rapidly shifting alliances and hostilities of the Middle East) possibly between both and Turkey." *Id.*

348. Wolf, *supra* note 112, at 36.

349. *Id.* at 37.

350. *Id.*

351. *Id.*

352. *Id.*

353. Haim Ben-Shahar, *Foreword*, WATER AND PEACE: WATER RESOURCES AND THE ARAB-ISRAELI PEACE PROCESS xiii (Elisha Kally & Gideon Fishelson eds., 1993).

354. *Preface*, WATER AND PEACE: WATER RESOURCES AND THE ARAB-ISRAELI PEACE PROCESS xv (Elisha Kally & Gideon Fishelson eds., 1993).

355. Common Agenda, *supra* note 336, 32 I.L.M. 1522.

governing the use of water.[356] Under the terms of the treaty, Israel has primary entitlement to the waters of the Jordan River.[357] Jordan, on the other hand, is required by the treaty to withdraw the water it takes from the Jordan River from an area on the lower Jordan, where the water is very saline.[358] To compensate for the higher salinity, Israel agreed, as part of the Treaty, to cooperate with Jordan in discovering sources for the supply of an additional 50 MCM/yr. of drinkable water to Jordan.[359]

III. *THE DRAFT ARTICLES CONSTITUTE A USEFUL FRAMEWORK TO AID MIDDLE EASTERN STATES IN DRAFTING WATERCOURSE AGREEMENTS*

The Draft Articles provide Middle Eastern states with a workable and effective framework[360] upon which to rely for guidance in drafting their own watercourse agreements. As a broad framework, the Draft Articles will apply to all the Middle Eastern issues surrounding water use.[361] In addition, the Draft Articles embody the flexible principle of equitable utilization, requiring Middle Eastern states to optimally utilize the water resources of the region.[362] The absence of a provision on groundwater, however, will negatively impact the escalating conflicts over confined groundwater in the Middle East. Adoption of a confined groundwater provision, therefore, would address the devastating situation in the Middle East. Despite the ILC's failure to include

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356. *Id.* art. 6. Article 6 states that:

> [T]he parties agree to recognize each other's rightful allocations of the Jordan and Yarmuk rivers and of the Arab groundwater according to an attached annex. They agree to manage and develop their water resources without harming those of the other party. More water supplies are needed and both parties agree to search for ways to alleviate shortages by developing existing and new resources, preventing contamination, mutual assistance and transferring information and research.

Id.

357. Wenig, *supra* note 279, at 345.

358. *Id.*

359. Common Agenda, *supra* note 336, 32 I.L.M. 1522.

360. *See supra* note 20 and accompanying text (stating that framework structure of Draft Articles will best achieve goal of optimal utilization of watercourses).

361. *See supra* note 20 (declaring that framework of Draft Articles will permit their application to varied types of watercourses).

362. *See supra* note 281 and accompanying text (noting that when states develop a watercourse, equitable utilization requires them to derive optimal benefits from the use while minimizing harm to watercourse).

a confined groundwater provision in the Draft Articles[363] the General Assembly should recognize the Draft Articles as the basis for a framework convention on the non-navigational uses of international watercourses. Without a clear articulation of the international water law governing confined groundwater, many of the World's water-scarcity conflicts will persist.

A. *The Breadth and Flexibility of the Draft Articles Will Enhance Their Applicability to the Various Disputes Within the Middle East*

A broad framework agreement containing the general principles of international water law facilitates the drafting and negotiation of provisions concerning water utilization for surrounding states of a watercourse.[364] Designed as a broad framework agreement containing the general principles governing the utilization of a watercourse,[365] the Draft Articles will facilitate states' attempts to create watercourse agreements.[366] The Draft Articles' comprehensive coverage of water law especially benefits the Middle East, where the water scarcity in the region has led to hostilities over water resources.[367] Even if, as one scholar has suggested, common legal rules unite all watercourses,[368] optimal utilization, protection, and development of a watercourse are best achieved when states are permitted to tailor the agreement to their specific needs and the specific characteristics of the watercourse.[369] The Draft Articles' breadth and flexibility will promote their application to varied types of watercourses and will,

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363. *See supra* note 269 and accompanying text (noting that Draft Articles exclude any water which does not form unitary whole with surface waters).

364. *See supra* note 265 (stating that Draft Articles serve as manual containing general principles of international water law as aid to negotiation of agreements or resolving problems).

365. *See supra* note 265 (describing how Draft Articles are to serve as framework).

366. *See supra* note 20 (noting that historical records reveal difficultly in reaching agreement on individual watercourse without aid of governing general legal principles).

367. *See supra* notes 117-45 (outlining disputes over Jordan River allocations); *see supra* notes 146-64 (noting tension concerning Iraq's, Syria's, and Turkey's conflicting use of water from Euphrates River).

368. *See supra* note 265 (illustrating Professor Hayton's argument that flexible framework is not needed due to common legal rules uniting all watercourses).

369. *See supra* note 20 (arguing that framework conception will best solve problems regarding utilization of international watercourses).

therefore, engender global support.[370]

The ILC's adoption of the equitable utilization principle will garner additional global support for the Draft Articles. Many experts consider this principle to be the most fundamental doctrine of international water law.[371] By balancing the benefits enjoyed and harms incurred by co-riparians' independent uses of a watercourse, the equitable utilization principle does not automatically prohibit a specific use of a watercourse simply because it causes some harm to a co-riparian.[372] By permitting continued use of a watercourse where the benefits to one co-riparian outweigh the harm to another, the Draft Articles foster optimal utilization of the resources of a watercourse.[373] If the drafters had not included the equitable utilization principle, one riparian unilaterally could prohibit the development of a watercourse by other watercourse states.[374] In light of the scarcity of water in the Middle East,[375] Middle Eastern states particularly need a watercourse regime that considers the benefits associated with one state's use, as compared with the resulting injury to another state.

B. *The Prevalence of Conflicts over Groundwater Internationally Will Compromise the Effectiveness of the Draft Articles*

Worldwide, states are increasing their dependence on groundwater to supply them with their growing water needs.[376] Due to this increasing reliance on groundwater resources, the General Assembly should acknowledge the need for explicit rules regulating the use of confined groundwater by including within the Draft Articles an additional provision governing the

370. *See* Rahman, *supra* note 22, at 16 (declaring that "increased flexibility in the final document would permit more states to adapt their general rules to the specific watercourse regime, and hence, would lead to a wider acceptance and recognition").

371. *See supra* note 278 (noting that most basic concept in international water law is equitable utilization).

372. *See supra* note 288 and accompanying text (recognizing that equitable utilization may require some watercourse states to endure a measure of harm).

373. *See supra* note 20 (declaring that optimal utilization is best achieved by Draft Articles broad framework).

374. *See supra* note 331 (noting that Israel has prohibited development of West Bank groundwater by Palestinians by claiming that Israeli use is prior in time).

375. *See supra* notes 322-23 and accompanying text (stating that Middle East is one of most arid regions in World because 9 of 14 Middle Eastern States are water-scarce).

376. *See supra* notes 83-91 and accompanying text (noting how states are utilizing non-renewable groundwater to greater extent).

utilization of confined groundwater. The Draft Articles, however, only address groundwater that intersects with surface waters.[377] Instead, the ILC adopted a resolution encouraging states to elect to apply the Draft Articles' principles to confined groundwater.[378] Because no international law governs groundwater, the Draft Articles should supply all states with guidance regarding the utilization of confined groundwater.[379] The lack of guidance is particularly problematic in the Middle East, where confined groundwater is often in dispute.[380] If this water traverses an international boundary where it is relied upon by another state, an international water-resource problem will arise that is not governed by the Draft Articles.[381]

The failure to include confined groundwater within the Draft Articles undermines the aim of the drafters to create a broad framework. By failing to address all water issues, the framework encourages arbitrary resolutions on an ad-hoc basis. States that control confined groundwater sources, therefore, will continue to disproportionately consume the water. This will result in the deconstruction of the very goals sought by the drafters. In addition, it undermines the equitable utilization principle because it perpetuates the inequitable use of groundwater.

C. *Despite the Draft Articles' Benefits, the ILC's Failure to Include an Article Addressing the Use of Confined Groundwater Will Jeopardize the Draft Article's Effectiveness*

While the Draft Article's failure to address confined groundwater will compromise its effectiveness in resolving global water disputes, in the Middle East, this oversight will render it meaningless. In the West Bank, Israel's strict regulation of the West Bank's groundwater resources in order to protect a steady supply of water to its large cities[382] has incited resentment among the

377. *See supra* note 269 and accompanying text (declaring that Draft Articles only address groundwater that forms unitary whole with surface waters).

378. *See supra* note 271 and accompanying text (quoting ILC's resolution on groundwater).

379. *See supra* note 270 (stating that international groundwater law is nearly nonexistent).

380. Hayton, *supra* note 265, at 37.

381. *Id.* at 38-39.

382. *See supra* note 172 (demonstrating that Israeli cities of Haifa and Tel Aviv rely upon water from West Bank).

Palestinians.[383] Despite growing Palestinian hostility, Israel is unwilling to relinquish its control over the water resources of the West Bank.[384] The conflict surrounding the West Bank's water resources exemplifies the need for a codification of the general principles operative in the utilization of confined groundwater. Israeli entitlement to the West Bank's water resources is based upon the fact that its use was prior to that of the Palestinians.[385] The Draft Articles explicitly reject the claim that one state's use enjoys inherent priority over another's.[386] The Draft Articles, however, do not apply to the West Bank's water resources since it is confined groundwater.[387] Consequently, Palestinians cannot seek to allocate the water according to equitable utilization unless Israel agrees to allow the Draft Articles to govern the groundwater.[388] Israel is unlikely to do so because it will jeopardize the strength of their claim to control of the resources. The Draft Articles failure to include a provision regulating confined groundwater, therefore, will permit the inequitable allocations to continue on the West Bank.

In terms of Middle Eastern surface water, conflicting development projects on the Jordan and Euphrates Rivers have created tension between co-riparians.[389] On the Jordan River, for example, the unilateral development of the river by Syria, Jordan, and Israel culminated in the 1967 War.[390] Although Jordan and Israel signed a peace treaty on October 26, 1994,[391] tensions over the use of the Jordan could reignite. Under the terms of

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383. *See supra* note 327 and accompanying text (stating strong Palestinian objection to Israeli control of West Bank groundwater).

384. *See supra* note 328 and accompanying text (noting that due to importance with which Israel regards access to West Bank water, Israel has been unwilling to relinquish its control over West Bank water).

385. *See supra* note 331 (noting that Israel has prohibited development of West Bank groundwater by Palestinians by claiming that Israeli use is prior in time).

386. *See supra* note 316 and accompanying text (stating that Article 10 specifies that no use of watercourse enjoys inherent priority over another use).

387. *See supra* note 269 and accompanying text (noting that "watercourse" does not include confined groundwater since that does not form unitary whole with surface waters).

388. *See supra* note 271 (quoting resolution on groundwater which allows states to elect to have Draft Articles principles apply to confined groundwater in their region).

389. *See supra* notes 117-45 and accompanying text (outlining history of conflict over use of Jordan River).

390. *See supra* note 145 and accompanying text (stating that Arab States' action of building diversion project incited Israel, leading to 1967 War).

391. *See supra* note 336 (citing Peace Treaty between Jordan and Israel).

the Treaty, Jordan is required to extract its water from the lower Jordan, which has a high saline count.[392] Furthermore, because the Treaty grants Israel primary entitlement to the use of the Jordan River, Jordan has agreed with Syria to construct a dam on the Yarmuk River.[393] The realization of this project, however, is in doubt due to increases in Syrian withdrawals from the Yarmuk's headwaters, causing less water to reach the site for the proposed dam.[394]

The tensions over the use of the Euphrates, which began in 1973 when Turkey and Syria closed the gates behind two recently completed dams, could very well re-ignite.[395] Experiencing a sharp reduction in its receipt of the flows of the Euphrates,[396] Iraq could again blame Syrian waterworks for the decrease, resulting in rising hostilities and eventually, the moving of Syrian and Iraqi troops to their common border.[397] Indeed, the potential for water-generated conflict over the Euphrates remains.[398] Currently, the three states have water projects that will demand 1.4 times the average flow of the Euphrates.[399] When Turkey completes its water projects, Syria's supply of water from the Euphrates could drop by forty percent.[400] Furthermore, Iraq could lose up to eighty percent of the flows due to Turkish and Syrian water projects upstream.[401]

The Draft Articles can effectively address the potential for

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392. *See supra* note 358 and accompanying text (noting how Jordan is required, pursuant to Peace Treaty, to withdraw its water from point on lower Jordan which has high saline content).

393. *See supra* note 339 and accompanying text (noting agreement between Jordan and Syria to build dam on Yarmuk River).

394. *See supra* note 341 and accompanying text (stating that increasing extractions from headwaters of Yarmuk threaten construction of dam on Yarmuk).

395. *See supra* notes 117-45 (outlining disputes over Jordan River allocations); *see supra* notes 146-64 (noting tension concerning Iraq's, Syria's, and Turkey's conflicting use of water from Euphrates River).

396. *See supra* note 153 and accompanying text (recounting how water flowing to Iraq decreased by 80% after completion of two new dams upstream).

397. *See supra* notes 154-58 and accompanying text (reporting sequential order of rising hostilities between two states, eventually resolved by Saudi Arabian mediation).

398. *See supra* note 343 and accompanying text (announcing that tension over Euphrates still exists).

399. *See supra* note 150 and accompanying text (outlining three states conflicting water demands on Euphrates).

400. *See supra* note 345 and accompanying text (disclosing fact that water flowing to Syria will decrease while Syria's population will increase from 14 to 22 million).

401. *See supra* note 346 and accompanying text (highlighting potential for Euphrates' flows to Iraq to diminish by 80%).

conflict over the utilization of the Euphrates and the Jordan Rivers. The framework conception will supply the riparians of these rivers with flexibility in resolving, their conflicts.[402] Consequently, the states can tailor the framework agreement to the states' concerns and the watercourse's unique characteristics.[403] For instance, an agreement between the riparians of the Jordan might account for the river's higher salinity as it progresses southward to the Dead Sea. Similarly, a water agreement between Turkey, Syria, and Iraq might include various provisions that would ease Syrian and Iraqi fears over becoming Turkey's "hydrological dependents." Equitable utilization, as the governing principle of the Draft Articles, also supplies Middle Eastern states with a great deal of flexibility. As the Middle East water resources are placed under more and more pressure by growing population,[404] states will need to maximize the limited water resources at their disposal. The principal of equitable utilization gives them the mechanism by which to do so.[405] Accordingly, the Jordan and Euphrates riparians could equitably reallocate the water resources of the region in an attempt to reduce water shortages and, in turn, water conflict.

CONCLUSION

The Draft Articles represent a positive step toward establishing a comprehensive framework for resolution of global water disputes. The absence of provisions governing conflicts over confined groundwater, however, imperils the achievement of the Draft Article's stated goals. Specifically, the equitable utilization goal and the goal to create a broad framework agreement are compromised by the failure of the Draft Articles to address confined groundwater. Not only will global disputes regarding confined groundwater continue to be resolved in an arbitrary fashion, but the Draft Articles will ineffectively deal with the escalat-

402. *See supra* note 20 (asserting that framework conception provides most flexibility and allows states to tailor solution to their specific needs).

403. *See supra* note 20 (illustrating flexibility of framework conception).

404. *See supra* notes 322-25 and accompanying text (noting that while Middle East is already one of World's driest regions, as population of more Middle Eastern States continues to grow, region is predicted to get more water-scarce).

405. *See supra* note 284-90 and accompanying text (illustrating that equitable utilization provides states with flexible balancing test and allows beneficial use to proceed even if it causes some harm to another state's use of watercourse).

ing tensions over confined groundwater in the Middle East. Middle Eastern states, therefore, without guidance concerning confined groundwater disputes, could potentially ignore the entire document, despite its good intentions. Essentially, if Middle Eastern states fail to acknowledge the resolution on confined groundwater, the Draft Articles, after more than twenty-five years spent researching the subject, would be rendered worthless for the purpose they were written.